

THE RAILWAY GAZETTE
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DIESEL RAILWAY TRACTION SUPPLEMENT

The August issue of THE RAILWAY GAZETTE Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price 1s.

NOTICE TO SUBSCRIBERS

Consequent on further paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list which will be dealt with in rotation in replacement of existing subscribers who do not renew their subscriptions.

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DISPATCH OF "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders, 1940, No. 629

The Bank Holiday Ban

PARTIAL success is the best that can be accorded the endeavour of the Government to break with the tradition of a public holiday on the first Monday of August. Notwithstanding the legislative ban on the holiday and the expressed wish of the Government that the day should be treated as part of the working week, there were many who kept the holiday. Many reports speak of crowded resorts; the railways ran their normal weekday services but on some trains there was apparently a good deal of crowding and at certain stations there were long queues. The roads, too, bore evidence of a considerable volume of pleasure travel. Those who followed the instruction to carry on business as usual found that telephonic communication was hindered by the difficulty of obtaining answers to calls made to business offices. No doubt the most essential of the war industries were fully engaged, but even there the Government showed a strange lack of psychological understanding, for it chose the weekend to let it be known that it was reversing its general ideas on holidays and now considered that hours of work should be shortened and holidays re-instituted. The general impression seems to be that it is high time finality was reached. If Bank Holidays are to be jettisoned, the ban must be enforced; partial observance leads merely to inequalities and discontent.

* * *

Extension of Air-conditioning in India

Despite the fact that upper class carriage stock in India has been provided with electric fans, and plenty of ice has usually been obtainable, railway travel in that country during the hot weather has, hitherto, been one of the most trying experiences, particularly for the fair sex. Very high temperatures, an incredible infiltration of dust, even with closed windows, and lack of fresh air have combined to insure acute discomfort. For this reason, air-conditioning is nowhere more welcome than in the Sub-Continent, where the North Western has now joined the Great Indian Peninsula, East Indian, and Bombay, Baroda & Central India Railways in constructing coaches that are at all times cool, clean, and quiet, thanks to this equipment. A brief description of the new N.W.R. coaches, which are conditioned on the straight ice multiple unit system, will be found on page 147. A point of interest is that these N.W.R. carriages will be used across the Sind desert where the highest temperatures in India are recorded. It is a pity that external appearance could not have been considered and improved by fitting disc wheels to both bogies of the coach we illustrate.

* * *

Government Control of Undertakings

A legal suit of first rate importance to all industrialists whose undertakings have been or may be made subject to Government control came before Mr. Justice Bennett in the Chancery Division on August 2. In that Court the plaintiff, E. H. Jones (Machine Tools) Limited successfully challenged the right of the Ministry of Supply to take over the control of the company. The Judge granted the company an interim injunction to restrain agents appointed by the Ministry from interfering with the control and management of the company's business. The injunction was suspended from operating for ten days pending a possible appeal by the Ministry. The substance of the case was that the company, which was already operating under a form of control, received a letter on July 17 from the Ministry stating that from that day the Minister under powers conferred on him by Regulation 55 of the Defence Regulations had authorised two agents to carry on the company. The Chairman of the company, Mr. E. H. Jones, also received a message from his bank that it had

received instructions from the Minister to "freeze" all his banking accounts. The Judge held that the regulation in question exceeded the authority which Parliament had conferred on the rule-making authority. The consequence of holding that the regulation relied on was within the Minister's authority might have extraordinarily far-reaching effects.

* * *

Locomotive Crank Pin Failures

The report of the sub-committee on axles, crank pins, and bearings, published in connection with the annual meeting of the Mechanical Division of the Association of American Railroads held in June last, dealt at some length with the causes of driving crank pin failures in various types of locomotives. In this report it is stated that such failures both in freight and passenger service are relatively more frequent on modern engines capable of exerting high horsepower at high sustained speeds. This is clearly shown by the data available, which indicate that, for any driving wheel arrangement, as the number of trailing wheels increases to meet the increased boiler and firebox capacity, so also does the ratio of failed and cracked pins to the number of locomotives in service increase. Inasmuch as the data point to the desirability of keeping the fibre stress below 15,000 lb. per sq. in., the logical conclusion is that in order to reduce the possibility of main crank pin failures in locomotives designed for fast and heavy service the total piston thrust should be divided over two driving units. The report points out that, as the damage resulting from the failure of a main crank pin on a locomotive at high speed was out of all proportion to the actual cost of replacing the pin itself.

* * *

Overseas Railway Traffics

In some cases Argentine railways have shown a moderate improvement in their traffic returns for the third and fourth weeks of the current financial year. On the Buenos Ayres Great Southern the increase in the two weeks has been 205,000 pesos, and in the fourth week the Buenos Ayres & Pacific advance of 59,000 pesos more than covers the 56,000 decrease of the previous week. The Argentine North Eastern reports a net increase of 8,000 pesos in the two weeks. Central Uruguay traffics for the four weeks of the financial year are down £6,368 in sterling and \$182,341 in currency.

	No. of Week	Weekly Traffic	Inc. or Decrease	Aggregate Traffic	Increase or Decrease
Buenos Ayres & Pacific*	4th	1,168	59	4,416	716
Buenos Ayres Great Southern*	4th	1,927	41	7,654	274
Buenos Ayres Western*	4th	646	89	2,492	426
Central Argentine*	4th	1,546	515	5,714	3,228
Canadian Pacific	30th	1,070,600	255,200	18,137,600	3,444,600
Bombay, Baroda & Central India	18th	227,250	34,125	3,288,300	358,575

* Traffic returns in thousands of pesos.

Aggregate gross earnings of the Canadian Pacific Railway for the first half of 1940 amounted to £15,077,000, an increase of £2,715,400 in comparison with the first half of 1939.

* * *

Pooling in the U.S.A.

In the United States the pooling of passenger revenues by competing railways is forbidden by the Transportation Act of 1920 unless the sanction has been obtained of the Interstate Commerce Commission, which requires to be satisfied that economy of operation will result without undue restraint of competition and a worsening of the service to the public. It was not until 1925 that the assent of the I.C.C. was sought and obtained for the first U.S.A. pooling proposal, and this was by the railways serving the Puget Sound region between Seattle, Tacoma, and Portland—the Northern Pacific, Great Northern, and the Oregon—Washington subsidiary of the Union Pacific. At the maximum, in 1910, the three competitors operated eleven trains in each direction daily, whereas a faster but no less adequate service is now provided by four trains each way. In 1926 came a pool by the Northern Pacific and the Minneapolis, St. Paul & Sault Ste. Marie (Soo Line) of the service between the Twin Cities of St. Paul and Minneapolis and the Lake Superior ports of Duluth and Superior; but a pool proposed between the four companies which conduct a lively competition between Chicago and St. Louis—the Illinois Central, Chicago & East

Illinois, Alton, and Wabash—has not materialised. The most important of these pools has probably been that of the Pennsylvania and Reading Companies for the traffic between Philadelphia and the Atlantic coast resorts, but this is in reality a merger, under the title of the Pennsylvania-Reading-Seashore Lines, and has resulted in the taking up of a considerable mileage of competing trackage, and the working of the remainder as a single system.

* * *

American Cooperative Competition

All over the United States, apart from pooling schemes, a general understanding exists between competing railways as to the minimum times which shall operate between the cities served competitively, as well as to the nature of the facilities that shall be provided. Cut-throat competition is thus avoided, but on the other hand an almost inevitable result is that every new facility is duplicated or triplicated, according to the number of railways that are competing. The best-known example of this understanding is probably the New York Central and Pennsylvania competition between New York and the great cities of the Middle West—Chicago in particular—which has produced the 16-hr. extra-fare Twentieth Century Limited and Broadway Limited, the 17-hr. all-coach Pacemaker and Trail Blazer, and many other express services, all, of course, of advantage to intermediate cities on the two routes, but all, in effect, in duplicate. Between Chicago and the Twin Cities of St. Paul and Minneapolis there are three competitors—the Milwaukee, the Burlington, and the Chicago & North Western—all with their 6½-hr. high-speed services; between Chicago and St. Louis there are the four mentioned in the previous note; and between Chicago and Los Angeles the Santa Fe and the North Western-Union Pacific-Southern Pacific alliance maintain their Pullman and all-coach flyers on exactly the same schedules and at the same frequency. Similar conditions apply over the Seaboard Air Line and the Atlantic Coast—Florida East Coast routes between the Eastern States and the popular Florida Coast resorts. The public has thus in no way suffered by this cooperative competition, though it is doubtful if all the duplication of facilities is economically justified.

* * *

Canadian "Pool Trains"

In Canada it was not until April 2, 1933, that the first pooling agreement came into operation between the Canadian Pacific and Canadian National Railways, in respect of the traffic between Montreal and Toronto. Competition between the two systems had become so keen that the former was running 6-hr. services over a 334-mile route, and the latter 6½-hr. trains over a line 340½ miles long and largely single-tracked. Indeed, the Canadian Pacific time of 108 min. over the 124 miles from Montreal West to Smith's Falls, with its average of 68.9 m.p.h. from start to stop, gave the C.P.R. the distinction of running the fastest train in the world at that time. The first result of the pooling was to stabilise the fastest time at 6½ hr., and to cause the withdrawal of various trains whose existence was not justified by the amount of traffic offering; and the annual saving effected is estimated at \$500,000. A curious result is that at 3 o'clock in the afternoon the Montreal passenger for Toronto has the use of an express described in the Canadian National timetables as the International Limited, and in the Canadian Pacific timetables as the Canadian, both starting from the latter company's Windsor Street terminus as one "pool train" composed of the stock of both companies. Pooling has since been extended to the Montreal—Ottawa, Montreal—Quebec, and other services. Sir Edward Beatty, President of the C.P.R., has declared that "there is a type of pooling that makes economies, but costs one or other of the participants in good will and contacts," but also that "there is a type of pooling between the two terminals at each end, where joint operation is not a bit harmful to individual companies and makes for genuine economies. Each case stands on its own feet."

* * *

Hinges for Rigid-Frame Concrete Bridges

The growing use of concrete rigid-frame bridges has brought with it the problem of suitable articulation at the bases of the

vertical members, particularly in long-span bridges. What constitutes a satisfactory hinge for such a structure can be determined only by laboratory tests and field experience. The University of Illinois, of whose bulletins on testing and research we have from time to time given notice, has recently conducted an investigation of rigid-frame bridges. Its third brochure (noticed on page 141) on the subject describes tests of reinforced concrete hinges, the purpose of which was to obtain information about the structural behaviour of various types adaptable to concrete rigid-frame bridges. A properly designed hinge, besides being flexible enough to allow a good rotation, should be capable of withstanding compressive as well as shearing forces, be economical to construct, and require a minimum of maintenance. Seven types of hinges to meet these requirements were tested to determine their elastic and ultimate strength under vertical loads and under inclined loads such as occur at the hinges of a rigid-frame bridge. All but one of the hinges proved to be flexible enough to permit an angular rotation of 0.004 radian. Probably about a third of the total rotation at the hinges is due to changes in the length of the deck caused by shrinkage, the effects of which occur over a relatively long period. The principal value of these studies is, of course, to provide a basis for further detailed tests, but the results do point to the most desirable types of hinges and suggest certain improvements in design.

* * *

Wagon Design in Argentina

In discussing a paper entitled "Notes on the Design of Wagons for Broad-Gauge Railways in Argentina," read by Mr. T. Clayton at a meeting of the South American Centre of the Institution of Locomotive Engineers, Mr. J. Cochrane of the Central Argentine Railway made some interesting observations respecting the wagon position on the four broad-gauge railways in that country. He said that in the prevailing circumstances the subject of wagon design was of special importance, and standardisation had become a matter of profound study. The standard wagon to suit the needs and working conditions of the four railways had to be designed and the experience of the railways co-ordinated in the endeavour to produce the most suitable vehicle. Each of the four Argentine railway companies interested in the wagon pool arising from the introduction of the common user system possessed wagon stock the design of which was evolved to suit the class of traffic offering on its own lines, and as the result of the railways each putting into the wagon pool a certain portion of its rolling stock and the experience gained over a period of two and a half years, those responsible for the design of the vehicles had derived a large amount of reliable data respecting types, materials, and details for the standard wagons of the future.

* * *

Flying by Bradshaw

"Flying by Bradshaw," or the practice of guiding an aircraft from place to place by following railway lines, was once heavily frowned upon by orthodox navigators. We see that it is now receiving official recognition as a procedure which may in some circumstances have to be adopted, although still only for short distances. Even so, it does not make cross-country flying fool-proof, for "wishful thinking" is particularly prevalent in the anxious conditions of high-speed flying, and the navigator who is temporarily lost and straining his eyes for a railway he has seen on the map is very apt to seize upon the first one coming into view on the ground as that which should lead him to his destination. This is another situation in which a knowledge of railway practice is useful; a characteristic design of signal box may be spotted and identify the line in view, particularly if the box is one which underwent a standardised repainting scheme shortly before the war. Streamlined locomotives in special liveries, seen at two thousand feet or so, loudly proclaim the company which owns them, and we know of a more humdrum type being identified by its length of boiler, and the position of the observing aircraft fixed by a knowledge of its most likely depot of origin. We hope that all railwaymen temporarily in the air will evolve further refinements of deduction, and so raise "flying by Bradshaw" from a despised makeshift to an honoured science.

A Criticism of Railway Working in 1842

THE accident at Sonning cutting, G.W.R., on December 24, 1841, when a mixed train collided with some earth which had fallen across the line, was the occasion for much exaggerated comment in the press. Even the *Mechanics' Magazine*, a serious journal, professedly devoted to scientific accuracy, felt compelled to join in the attack on the railways. Its issue for January 1, 1842, includes, under the attractive title of "The Modern Mechanical Moloch," a correspondent's remarks as follow: "The railway system has been productive of another appalling accident, the most deplorable, by far, which has yet stained its chequered annals. Eight persons in an instant dashed to atoms and twice as many grievously wounded! How many more instances of such horrid carnage must we wait for, before the legislature shall think it time to interfere for the protection of outraged humanity? It is idle to talk any longer of the dependence to be placed on the spontaneous exertions of the railway companies—of their interest in safety of conveyance being identical with that of the public—and so forth. The country has had several years of this dependence and what has been the result? One long, continuous endless train of disastrous accidents, nine tenths of which might have been averted by the exercise of due care and prudence on the part of these companies, who would still have us place our trust in them! Deodand after deodand has been imposed by honest and indignant juries—deodands surpassing in amount any previously known to our criminal history—denunciation on denunciation has been fulminated from the press—and yet the companies have adhered as doggedly to their life-and-limb destroying practices as ever. Not one improvement, of any material consequence, have they ever originated and adopted, in obedience to the public voice. Nay, so dead to shame are they that, when heaped with obloquy, to a height which would have crushed any ordinary body of public-disregarding monopolists, they had actually the assurance to protest, by their representatives, at a late public conference, that so far as depended on them (the directors, managers, and other chief executive officers) there was no room for improvement whatever!"

After saying that "mechanical ingenuity" could set the whole matter right if allowed "fair play" the writer continued "it is for these reasons that we invoke the paternal interference of the legislature and deprecate any further exclusive reliance on the companies." It appeared further that several "authorities of great eminence in the scientific world" considered that the passenger vehicles in a train should invariably be preceded by a separate one "carrying a buffer of sufficient power to save the whole train." A certain Sir George Cayley had published an essay on the subject in which he described an "air buffer" and considered the "case of two heavy trains, meeting each other on the same line of rails at full speed" and announced that "if the elasticity of the buffers be supposed perfect each train would rebound with the same velocity it advanced." (Nothing appears to have been said about the elasticity of the passengers.) "Now we do not ask," the correspondent went on, "why the Great Western Railway Company have not adopted Sir George Cayley's plan, . . . but we think we are in good reason entitled to ask whether all or any of the carriages in the train . . . were provided with buffers of any sort? Whether any means whatever were provided for enabling the carriages to sustain, without damage, any collision which might happen to them, in the course of their 118 miles of transit under the cloud of night? And what is the practice in general of the company under this head? Are any of their other trains provided with buffers? Or if not, what experiments or trials have they made, with a view to ascertain the best plan of so protecting them? All these are questions which ought to have been put at the inquest on the bodies of the persons killed but were not."

Whatever grounds for complaint the writer may have had on the question of fitting buffers, he was a long way from accuracy in his opening assault, for the "continuous endless train of disastrous accidents" was a myth of his own invention. By the date of, and including, the Sonning accident,

only 34 passengers had lost their lives in train accidents in the ordinary sense.

* * *

Long-Distance Working with Beyer-Garratt Locomotives

THE new 4-6-4 + 4-6-4 Beyer-Garratts for heavy passenger service on the Rhodesia Railways (described on page 144) provide yet another example of the potentialities of this type of articulated locomotive as a solution to difficult operating problems. In its early years, the Garratt, despite the maker's claim, was looked upon mainly as a powerful engine for more or less special conditions; latterly, however, an increasing number of designs has established the type as suitable for the improvement of many kinds of duty now performed by the orthodox type. The special feature of the new Rhodesia Railways design is its selection for long-distance passenger working, namely, 484 miles without an intermediate depot. Such conditions demand the utmost reliability and sustained performance capacity, for the 484-

mile route is worked as a round trip (on the caboose method) totalling 968 miles. In our issue of July 21, 1939 (p. 94), we described the 4-8-4 + 4-8-4 Beyer-Garratt locomotives on the Kenya & Uganda Railways, which, we understand, have been employed for some months on a round trip of 1,006 miles, also caboose worked. Further, the first 4-6-4 + 4-6-4 engines delivered more than three years ago to the Sudan Railways have been operating caboose-worked round trips of 600 miles. A contribution to the reliability of this type of engine, in the case of the Kenya & Uganda and Rhodesian types, is the adoption of grease lubrication and roller bearings for the coupled axleboxes and bogie wheels respectively, which, apart from their intrinsic advantages, overcome a difficulty that has grown with the size of the Beyer-Garratt engine, namely the length of time taken by the engineman in oiling up, and the extra vigilance and work required throughout the run. These bearings are now the responsibility of the shed staff, and bearing trouble on the road is of very rare occurrence. All these long runs are on single line narrow-gauge railways with 50-lb. to 60-lb. rails, and are performed by locomotives with comparatively small coupled wheels.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

East Surrey Railways

Essex House, W.C.2

August 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—One naturally assumes that the turnpike road from Croydon to Merstham was there before the parallel Croydon, Merstham & Godstone Railway was constructed, but this is not the case. This southern extension of the Surrey Iron Railway was opened on July 24, 1805, and twelve years later John Hassell wrote in his "Rides & Walks Thirty Miles Round the British Metropolis" (1817, Vol. I, page 172):—

"Leaving this spot, we kept under the hill until we reached the high road from Croydon to Reigate, where we turned to the left (the other road leading to Croydon which we have already described) and kept up Hooley Lane. A few years since the author remembers this spot almost impassable, often being up to the axle of his chaise in the ruts, and scarcely ever going more than four miles an hour; it is now converted into a capital turnpike road, and from its excellence the stages and visitors to Brighton prefer it to any of the others . . ."

"Through Hooley Lane an iron railway has been laid for the conveyance of chalk and lime from the quarries of Mr. Jolliffe, near Merstham."

Yours faithfully,

KENNETH BROWN

Increasing Welding Output

Welwyn Garden City, Herts

August 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—At the present time there are between 30,000 and 40,000 arc welding machines in use in Great Britain, almost all of them being used exclusively on Government and armament contracts. Many letters have appeared in the Technical Press for prominent industrialists bemoaning the fact that machine tools are not working twenty-four hours a day.

This contention undoubtedly applies to welding machines, also, which are of course a form of machine tool. However, a case for much more serious concern at the present time is the fact during the hours that arc welding machines are used, they are almost invariably not being used to their full productive capacity.

This foundation has been endowed to promote knowledge of welding and we would recommend every engineer who uses arc welding to give serious consideration to the following points:—

(1) A welding operator seldom has his arc burning for more

than four hours out of every eight. The operator spends the remaining four hours cleaning his welds, assembling the job to be welded, tacking and doing other work which could be done by unskilled labour.

(2) Welding electrodes are seldom run at maximum currents. The rate of melting of the electrode increases as the welding current increases and welding currents can frequently be increased 10 per cent. or 20 per cent. and can often be increased 30 per cent. or 40 per cent., thereby giving a faster rate of welding.

(3) Work is all too frequently welded with $\frac{5}{16}$ in. electrodes where a $\frac{3}{16}$ in. electrode can be used, a $\frac{3}{16}$ in. electrode is often used where a $\frac{1}{8}$ in. electrode can do the job. By using a larger electrode, a weld joint can be made very much more quickly because welding is a matter of depositing metal and it is sound economics and good engineering to use the largest electrode and the highest current possible on the job.

(4) By the use of jigs, fixtures and manipulating devices for turning jobs being welded, the time the arc is in operation can be increased still further by turning work, so that the operator is welding in the flat position, rather than in the vertical or overhead position.

We have no hesitation in stating that if engineers who control welding operations were to give some consideration to the points mentioned above, the production of welded work could be increased by at least 10 per cent., and in many cases increased by 30 per cent. or 40 per cent. If only 10 per cent. increase in production were secured, this would mean 3,000 or 4,000 welding machines released for productive work, instead of running idle, and a like number of skilled welding operators released.

Quite apart from the above question of increasing welded production, considerable quantities of steel can be saved by redesigning existing machinery and armaments, so that such machinery, etc., can be fabricated by welding. The use of welded fabrication inherently entails considerable saving in steel as compared with other methods of manufacture. It is quite common for machinery redesigned for fabrication from welded steel to show a saving of between 10 per cent. and 20 per cent. of the weight of steel required as compared with other methods of construction.

This foundation is again offering £40,000 as prize money for engineers who devote time and study to this question of the correct use of welding and obtaining the full benefits from welded fabrication. This prize money was endowed before the war started but today it is doubly important that engineers give attention to these matters as part of the national effort.

Yours truly,

THE JAMES F. LINCOLN ARC WELDING FOUNDATION,

R. BUTLER,

British Representative

PUBLICATIONS RECEIVED

University of Illinois Bulletins.—The following bulletins have recently been issued in Volume XXXVII by the University of Illinois, Urbana:—

No. 28: "Summer Cooling in the Research Residence with a Condensing Unit Operated at Two Capacities." By Alonzo P. Kratz, Seichi Konzo, Maurice K. Fahnestock and Edwin L. Broderick. Price 70 cents.

No. 29: "An Investigation of Rigid Frame Bridges, Part III: Tests of Structural Hinges of Reinforced Concrete." By Ralph W. Kluge. Price 40 cents. (See page 138.)

English Electric Products.—Leaflets recently received from the English Electric Co. Ltd. include Nos. W72 and W93 describing respectively the latest forms of synchronous induction motors and fan-cooled squirrel-cage motors. The former deals with the machines used for power-factor correction.

Compressed Air Equipment.—A comprehensive and well-illustrated list of air line fittings, air valves, and compressed air accessories has been issued by B.E.N. Patents Limited, of High Wycombe, Bucks, to show the numerous new products of that company, as well

as the continuous improvements made in the design and construction of well-established fittings.

Battery Chargers.—One of the principal uses of the metal oxide rectifier is to charge the batteries of electric vehicles and trucks, and as made and applied by the Westinghouse Brake & Signal Co. Ltd., of London, N.1, such rectifiers are fully described and illustrated in the 9th edition of the Westinghouse pamphlet No. 11E.

Phase Converters.—Another recent Westinghouse brochure, No. 11M, describes small static phase converters for conversion of single-phase current to three-phase, and deals in a general way with the principles of phase conversion.

THE SCRAP HEAP

RETURN TICKET

Two Mexicans were to fight a duel. The first booked a return ticket; his opponent took only a single.

"Caramba," exclaimed the first. "You expect not to come back, my friend? I always get a return."

"I never do," said the other. "I always take my adversary's return half."—From the "Newcastle Journal".

* * *

RUNAWAY DOG BEATS THE TIMETABLE

A Labrador retriever dog, sent alone by train from the Midlands to Ramsgate, escaped at Holborn Viaduct, where it had to be transferred to another train. It ran down the line, and arrived, *via* Blackfriars, at London Bridge station, a distance of nearly two miles. There a railway porter secured it, and, after reading the label on its collar, put it into a fast train for Ramsgate. It got to its destination some hours earlier than it otherwise would have done.—From "The Star".

* * *

Distribution of fourteen purebred dairy sires is announced by Mr. Henry J. Schwieter, General Agricultural Agent of the Illinois Central System, as a part of the railway programme of encouraging improvement in dairy herds along its lines, especially in the territory south of the Ohio River. The bulls were assembled at Paducah, Kentucky, where they were exhibited during the annual strawberry festival, June 6, 7, and 8, and were afterwards shown at many other points, where delivery was made to the farmers to whom they are being lent. The bulls are of Jersey and Holstein breeds, all from high producing herds.

* * *

The engine with "BR" on the front buffer beam—doubtless to indicate "British Railways"—seen in the R.E.C. poster emerging from a guarded tunnel mouth, is a "V2" 2-6-2 of the L.N.E.R. Such a categorical statement as "This Engine used to pull Holiday trains to Folkestone," and to other seaside

resorts as well on the lines of all four railway groups, however complimentary it may be to Sir Nigel Gresley's design, is unfortunately characteristic of much current propaganda.—From "The Railway Magazine," April, 1940.

* * *

Sir Alfred Herbert, writing in a pamphlet entitled "Road Accidents," says: "If the railways were to kill and injure one-tenth as many people as the motor car, a wave of indignation would sweep through the country and I think the rails would be torn up and the railway directors hanged on the signal posts." In fact total railway casualties amount to less than a twentieth of those on the roads.

* * *

C.P.R. AND THE BRITISH RED CROSS

More than enough money for two ambulances has been collected by the Canadian Pacific Red Cross Group. The response to an appeal from the British Red Cross has been doubly met, \$4,428 having been collected by the second week in July. This will pay for two ambulances and leave some hundreds of dollars for other war effort. Employees of Angus shops distinguished themselves by the enthusiasm of their response. In seven days they subscribed \$2,300, which is more than enough for a single ambulance.

* * *

EARLY CONTINENTAL TOURING

It was in 1887 that Mr. Bolton King, determining to extend the educational advantages of foreign travel to East End students, conceived the idea of a co-operative expedition to Italy. . . . Application to the two railway companies, the South Eastern and the London, Chatham & Dover, mainly concerned with Continental travel, having failed of response (they soon learned of the significance of the movement and came into line with the other more enlightened companies), Mr. King turned to the Great Eastern Railway Company whose Continental manager warmly embraced the scheme and, with the adhesion of the Belgian,

German, Swiss, and Italian State Railways, largely reduced second class fares were secured, on the ground that we came under the regulations regarding bodies of students travelling with their professors for educational purposes. True, the respective railway officials expressed some surprise as we pursued our journey that the students appeared to be all professors.—From "A Basketful of Memories," by the late Thomas Okey, Emeritus Professor of Italian at Cambridge University, who died in 1935.

* * *

EAST LONDON IN THE 50'S AND 60'S

The district (Spitalfields) was settled in former times by a colony of the thirteen thousand Huguenot refugee silk-weavers exiled by the Edict of Nantes, outside the Norton Folgate and near the site of the old shambles—the navvies as they excavated the hinterland of our house in Quaker Street for the extension of the Great Eastern Railway disinterred large caches of bullocks' horns which they transubstantiated into beer and tobacco.—From "A Basketful of Memories," by the late Thomas Okey.

* * *

John Ellis, M.P., of Belgrave, Leicester, assumed the chairmanship of the Midland Railway Company in 1849. He was the founder of the Leicester & Swannington Railway, and it was through his efforts that the Bristol & Birmingham Railway was acquired and merged into the Midland Railway Company. A magnificent portrait of him in oils hangs in the great hall at Euston. The portrait, showing the Glenfield tunnel and the engine named *Buffalo*, bears a tablet with the following inscription:—

Presented at a general meeting of the Midland Railway Company to

JOHN ELLIS, ESQ.,

Their Chairman, as a token of their esteem and with grateful recognition of the ability and success with which for nine years he presided over the administration of their affairs.

* * *

The first locomotive to work in South-West Africa, introduced at Walvis Bay in 1898, is mounted on a plinth outside Windhoek station.

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

ARGENTINA

Presidential Message to Congress

The 1940 Congressional Session was opened by President Roberto M. Ortiz on May 14. The Public Works section of the Presidential Message to Congress dealing with railway affairs contained interesting information regarding the working of the State Railways, a summary of which is given below.

State Railways Mileage and Earnings

The acquisition by the Government of the Córdoba Central Railway had added 2,044 km. to the State Railway system, the total length of which was now 12,523 km., representing approximately 30 per cent. of the entire railway system of the Republic. During the year 1939 the gross receipts amounted to \$98,668,751 paper, an increase of \$5,828,427 over the previous year. The number of passengers carried was 9,250,296, an increase of 1,306,480 or 14.12 per cent., as compared with 1938. Goods traffic amounted to 7,602,370 tons, an increase of 465,561 tons, or 6.5 per cent. over the previous year. Of this, 7,004,961 tons, or 92 per cent., were carried by the Central North Argentine line.

Diesel Services

Diesel services had been still further augmented; 4,532 km., that is to say, over 36 per cent. of the State lines were now served by diesel railcars, distributed as follows:—

	Km.
C.N.A.	2,854
Eastern	654
Patagones-San Carlos de Bariloche	827
C. Rivadavia-C. Sarmiento	197
Total	4,532

Since April 1, 1939, a return service of air-conditioned diesel passenger railcars, with a buffet, had been in regular daily operation between Buenos Aires and Rosario, the distance of 305 km. being covered by these trains in 4½ hr. During the nine months, April 1 to December 31, 1939, the total number of passengers carried by the diesel trains between these two points was 89,075, as compared with 7,746 by the steam trains during the whole of 1938. The total number of diesel units in service on the State lines now comprised 63 motor coaches and 9 triple trains (narrow gauge); 6 motor coaches (medium gauge), and 3 motor coaches and 2 triple trains (broad gauge).

International Service to Chile

During the winter months one train to and from Chile will run each week in combination with the C.I.T.A. motor service between Mendoza and Punta de Vacas. Westbound trains leave Buenos Aires on Wednesdays at 11.30 a.m., and eastbound trains leave Santiago and Valparaiso at 8.00 p.m. on

the same day, arriving at Buenos Aires at 3.30 p.m. on Fridays. The international trains also carry passengers for San Juan, connection being made at Mendoza with a train arriving at San Juan at 10.20 a.m. In the reverse direction, trains leave San Juan at 6.10 p.m. on Thursdays, making connection at Mendoza at 10.00 p.m. Sleeping cars are available for the through journey from Buenos Aires to San Juan.

CANADA

C.N.R. Montreal New Works

The important viaduct connecting the new C.N.R. Montreal terminal with Victoria bridge will be completed before the winter with the exception of the Lachine canal bridge, the superstructure of which will not be erected until the winter, when the canal will be out of use; the steelwork is at present being fabricated.

The design of the new station building includes (1) a sub-basement under track level for luggage, mails, and express, (2) a basement embodying the usual platform-level offices and other accommodation, (3) a concourse on the floor above track level, on a level with Lagauchetiere Street, (4) a storey of offices on a level with Dorchester Street, and, in the first instance, only one or two more storeys above that. The original design included 25 storeys, and the modified one will be so built that other storeys can be added later.

An Unusual Line Abandonment

On February 29 last, an order of the Board of Transport Commissioners authorised the closure of the Arnprior-Eganville section of the Canadian National Railways, in circumstances unlike those attending the normal closure orders. Apart from usual conditions, such as the effecting of an annual saving of \$104,000 and the infliction of little hardship on the inhabitants of the area served by the line, which would and did justify the authorisation, application for abandonment was supported by a report of the Canadian—National Canadian—Pacific Railways Joint Co-operative Committee, setting forth the basis of an arrangement between the two administrations for abandonment. This was doubtless due in some measure to the fact that the C.P.R. parallels the abandoned line at a distance of only two or three miles, for some considerable distance.

The Arnprior-Eganville section was built under charters to two separate companies, which, however, amalgamated to form the Ottawa, Arnprior, & Parry Sound Railway Company before this 38-mile section was opened in 1894. Further amalgamation followed in 1899 under the title of the

Canada Atlantic Railway Company, control of which was acquired by the Grand Trunk Railway Company of Canada in 1904, and this in turn was one of the constituents of the C.N.R. in the amalgamation of 1923. As well as the C.P.R. line, numerous highways adequately serve the district, and there is access to the main line of the C.N.R. and the C.P.R. at Pembroke, via Golden Lake, so that justification for closure was not difficult, though strongly opposed by the towns served.

WESTERN AUSTRALIA

Refreshment Services and Bookstall Rights

Under the provisions of the Western Australian Government Railways Act the Commissioner of Railways may, after calling for tenders, lease, for any period not exceeding five years, railway restaurant cars and any part of railway land or buildings for the sale of refreshments, books, etc., and the practice of leasing the refreshment and bookstall rights has obtained for many years.

On June 30, the current leases, which have operated for the past five years, expire, and fresh tenders were called in February, returnable in March, for new five-year leases current from July 1, 1940. These tenders have now been dealt with, and, while in the majority of cases the old lessees have been successful in retaining their leases for a further term, in a few instances changes have resulted, notably for Perth, Pinjarra, Cunderdin, and Katanning, where higher rentals were tendered by other than the current occupiers, and, as the applicants were deemed to be suitable persons to hold the leases, their respective tenders were accepted. The result has been an increase in revenue of between £400 and £500 over the whole system.

Interstate Service Dining Cars

Included in the services leased are the dining cars operating between Perth and Kalgoorlie in the Interstate train service between Perth and Eastern Australia, and on which two meals are served to Interstate travellers, the cost of which is included in the fare. The dining cars each have accommodation for 24 diners at one sitting, and, with large numbers to be catered for, it has frequently happened that the meal has continued into five sittings, as a result of which complaints have arisen from those who have had to wait.

To overcome these complaints, and to give a better service generally on the cars, arrangements have been made for two dining cars to be attached to the Interstate express at the Perth end of the journey and this enables the whole of the passengers to be catered for at two or at the most, three sittings. Coincidentally with this innovation, the call system has been introduced, and passengers are now able to choose the sitting preferred and proceed to the restaurant car at the allotted time with the knowledge that a seat is available.

THE "FREE" OUTER SIGNAL IN INDIA

New proposals put forward on the Bengal-Nagpur Railway

OUR contemporary the *Bengal Nagpur Railway Magazine*, in its issues for October and November, 1939, discussed the relative merits of using "free" or "locked" outer signals at Indian Class "B" stations. The Class "A" Indian station is equipped with warner, home, and starting signals; the warner is equivalent to the English distant signal, so that such stations resemble in principle the usual British through or roadside station. The Class "B" station, however, has a stop signal arm, known as the outer, mounted over the warner, so that the first signal a driver sights on approaching a station is a stop signal. In the opinion of most Indian railway officers, little, if any, inconvenience results from this practice, owing to the long clear sights of the signal almost always obtained in India. Class "B" stations are very numerous, as they are standard on the vast mileage of single line throughout the sub-continent, but the majority of double line stations also have outer signals. Only one railway, it is understood, works all its double line stations as Class "A"; on some others certain sections of line, here and there, are so operated. The Government of India rules require that unless qualified signalmen are employed, the outer signal must be released by the home; but apart from any such consideration, the use of such interlocking has an important bearing on traffic working. When it is not installed the arrangement is known as "free" outer working. The "locked" outer signal is practically essential, our contemporary observes, at ordinary single line stations, as it facilitates the use of the block sections, while ensuring that, when signals are cleared for an oncoming train, the line is clear and properly safeguarded for an adequate distance along the station line on which the train is to be received. Trains can thus approach from opposite directions simultaneously and signals can be cleared for one of them in readiness. On the other hand, if, for some reason, the home signal cannot be lowered then neither can the outer. If, therefore, in the meantime it is desired to bring a train inside the latter signal—for better protection against another being accidentally allowed to approach in rear—a pilotman has to be sent out to pilot the train past the locked signal. Such piloting obviously takes much more time than would be consumed if the outer signal could be

pulled off to allow the train to move up to the home. The risk of error arising from failure to restore signals promptly is greater on double line sections using plain block telegraph, than on single lines where the driver has to take the token.

Our contemporary, however, considers that there are good reasons for having a "free" outer signal at double line Class "B" stations, where the question of trains approaching together from opposite directions does not arise, as there is some advantage in being able to bring a train up to the home signal—and thus within the protection of the outer—promptly, especially where there is no lock-and-block. Also, at stations where there is slotting between cabins at each end the "locked" outer arrangement is likely to be misleading, since a signalman might pull over a home signal lever, while the slot was on from the next box, and thus be able to pull the outer and convey a wrong impression that the home was off. To prevent this, additional equipment would be necessary.

Reviewing the whole question the *Bengal Nagpur Railway Magazine* arrives at the following conclusions:—

(a) "Locked" outers should be used in general at single line stations; but

(b) "Free" outers are desirable, even on single lines, where home signals are slotted;

(c) At double line stations outers should be "free."

If "free" outers are invariably used on double lines and "locked" ones on single, the two sets of circumstances are always clearly distinguishable by the staff; if, however, the suggestion (b) above is adopted, our contemporary considers it desirable to introduce some means of distinguishing any outers made "free" in accordance therewith. It suggests adding a letter "F" (free) to the outer signal arm in such cases and using a yellow spectacle glass for the "off" position. The warner arm below would then be fixed in the "on" position (red light) so that the least restrictive night aspect the combination could display would be yellow over red, and yellow over green could not be shown. How these views and suggestions will be received by signalling and operating officers in India remains to be seen; they provide yet another addition to the large amount of discussion to which the combined outer and warner signal has given rise in the many years that have elapsed since it was first suggested.

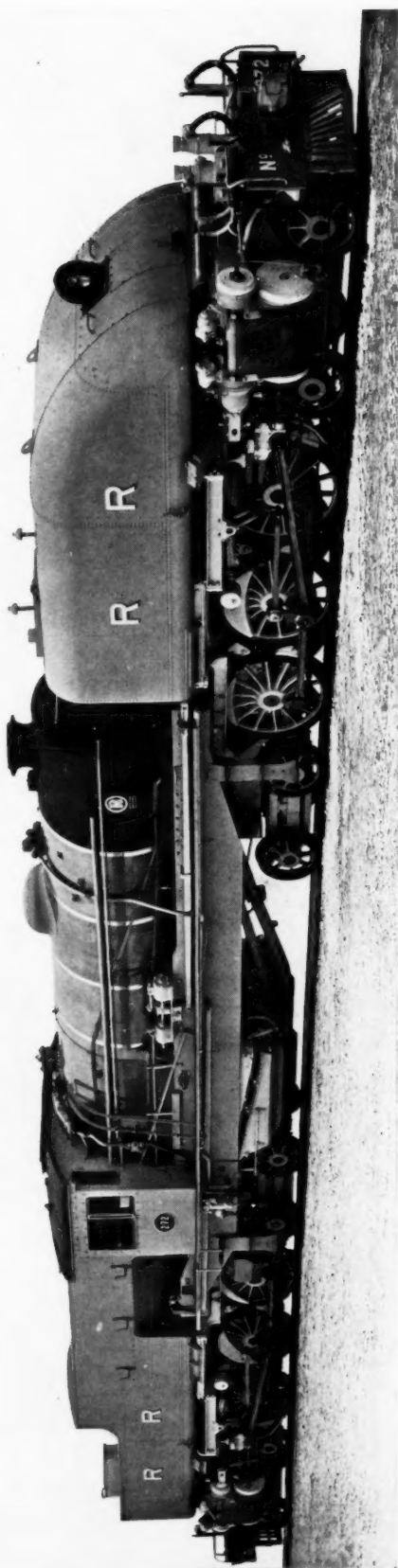
Communications with France and with Enemy Territory

THE Postmaster-General announced on July 31 that the position as regards postal communication with the unoccupied part of France, with French possessions and with enemy territory is as indicated below:—

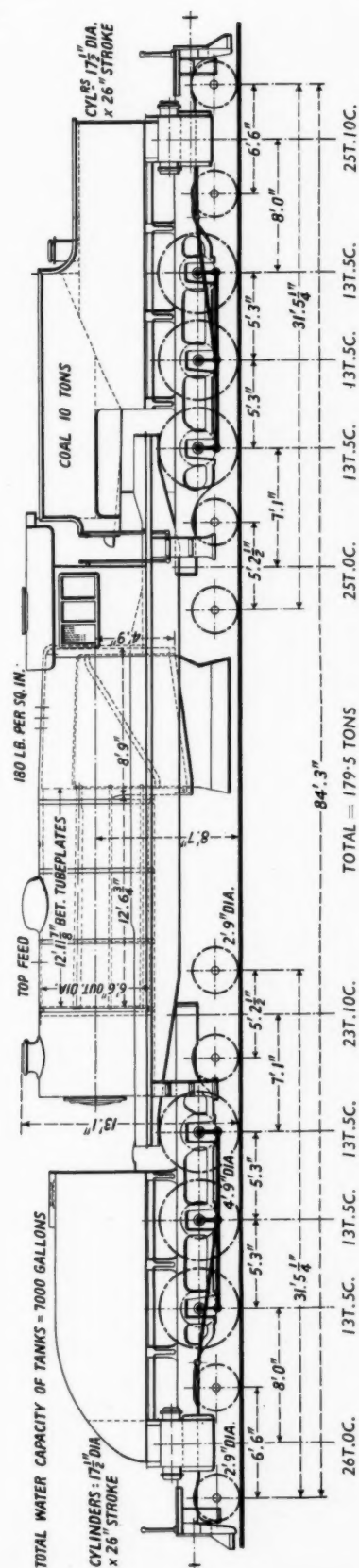
(1) *Unoccupied France together with Algeria, Corsica, Morocco (French Zone), and Tunis.*—The postal services, except the insured letter, parcel post, and money order services, to these territories have been resumed, but the provisions of the Trading with the Enemy Act apply and, while letters and postcards on strictly personal matters may be posted in the ordinary way, nothing which might in any way benefit the enemy is permissible, and in general no communication will be sent on unless the Censorship Authorities are satisfied that its despatch is not contrary to the national interest. Letters should be brief. Delays in transmission may be expected. Correspondence on business matters is permitted only in approved cases and should be sent, open and fully prepaid, to the Trading with the Enemy Branch (Treasury & Board of Trade), Imperial House, Kingsway, W.C.2, under cover of a letter explaining the circumstances in which it is desired to send it. Printed matter and goods and commodities may in general be sent to unoccupied France (and to French Overseas possessions, see below) only by the holders of permits issued by the Censorship Authorities for this purpose.

(2) *Other French Overseas Possessions.*—The normal postal service with French possessions, other than the territories mentioned in the preceding paragraph, remains in operation.

(3) *Occupied France, and Enemy and Enemy-occupied Territories.*—Letters on purely personal matters to persons residing in Belgium, Czechoslovakia, Danzig, Denmark, France (German-occupied), Germany, Holland, Italy and Italian possessions, Luxembourg, Norway, Poland (German-occupied), and the Channel Islands may be sent through Thomas Cook & Son Ltd., Berkeley Street, Piccadilly, W.1, to whom application should be made. The Red Cross Postal Message scheme, under which brief messages relating solely to family matters may be sent by relatives will continue to operate, as heretofore, to Germany and the occupied territories of Belgium, Czechoslovakia, Denmark, Holland, Luxembourg, Norway, and Poland. The messages, which are limited to twenty words, should be handed in at a Citizen's Advice Bureau. The address of the nearest bureau can be ascertained at Post Offices. Correspondence on business matters with persons in enemy or enemy-occupied territories is permitted only in approved cases and anyone who desires to communicate with such persons on business matters should forward the communication to the Trading with the Enemy Branch as indicated in paragraph (1).

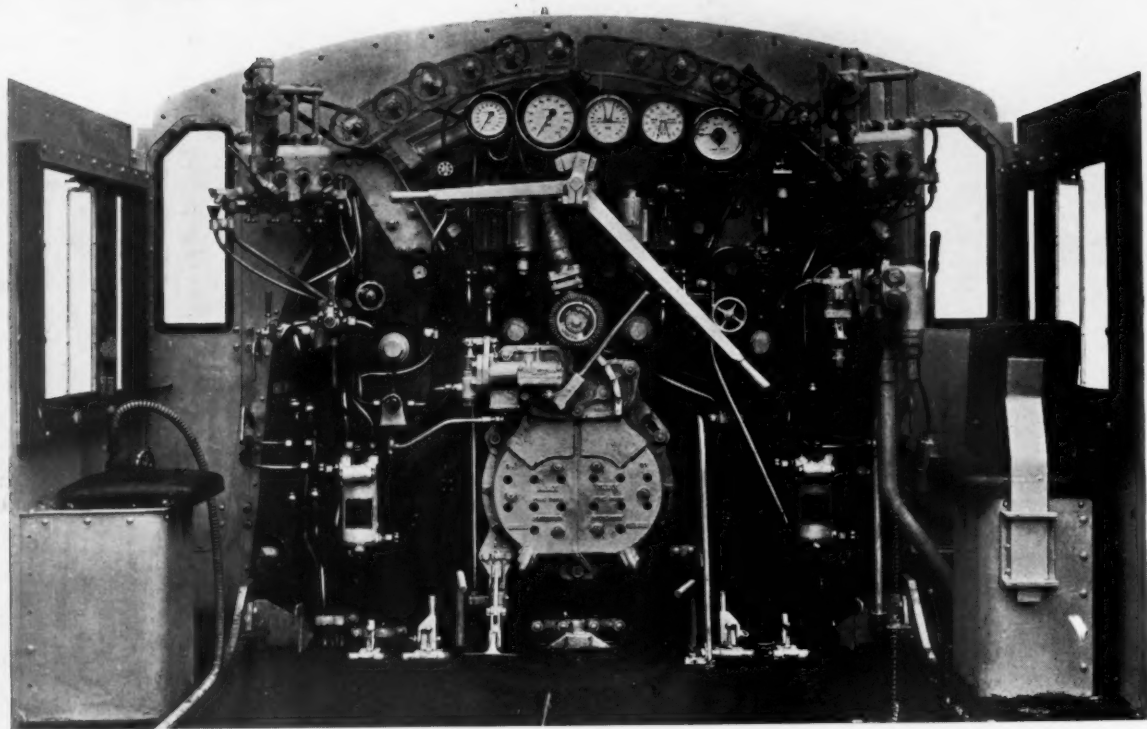


General view of locomotive

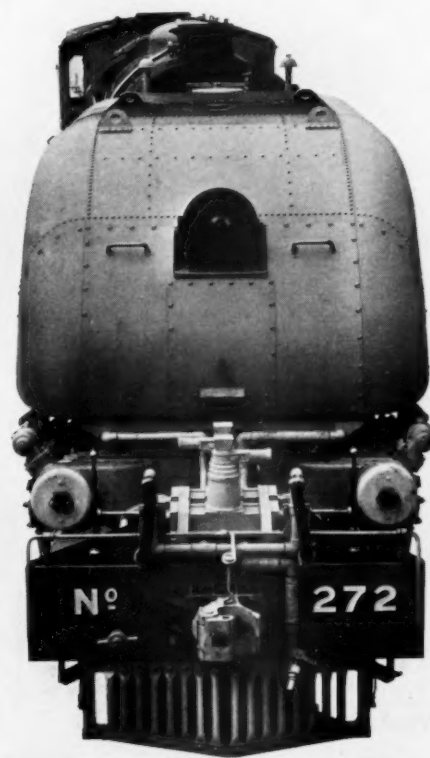
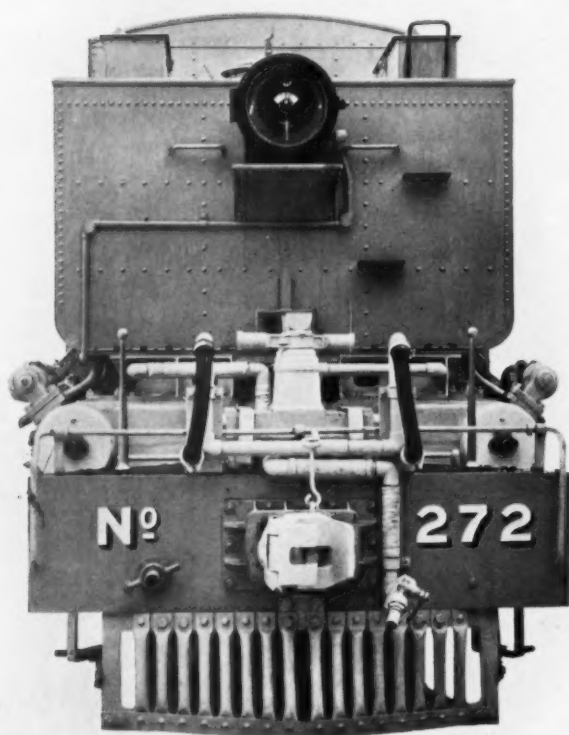


Outline diagram showing principal dimensions

NEW 4-6-4 + 4-6-4 BEYER-GARRATT LOCOMOTIVE FOR THE RHODESIA RAILWAYS



Cab arrangements of new 4-5-4 + 4-6-4 Beyer-Garratt locomotive, Rhodesia Railways

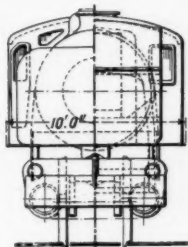


Left: Hind end view. Right: Looking down on front end of new 4-6-4 + 4-6-4 Beyer-Garratt locomotive, Rhodesia Railways

the general characteristics of which are the strength of the unit chassis, various improvements in numerous details, such as smokebox and valve gear, improved articulation points, and increased accessibility throughout, all tending towards reliability in performance and low maintenance, not only in the running shed but in the shops at general overhaul.

The boiler, which is larger than that of the Sudan engine, has been selected from the eight-coupled Beyer-Garratt type of the Rhodesia Railways, thus preserving interchangeability. At the same time minor improvements have been incorporated. The firebox, which is of copper, is fitted with flexible stays in the breaking zone and has four arch tubes. Principal boiler fittings include two Everlasting blow-off cocks, three 3-in. diameter Ross pop safety valves and an Ajax steam operated firedoor. Injectors are of Davies & Metcalfe and Gresham & Craven make, type No. 11; two engines are fitted with the former and two with the latter.

The engine units are of bar frame construction, and the cylinders, of cast iron, are extended to form a frame stay, and are thus bolted together on the centre line of the engine. The boiler cradle is carried on cast steel pivot centres with roller type side bearers in accordance with Beyer Peacock's latest patented inverted design. The Walschaerts valve gear has a maximum travel of 6 in. at 75 per cent. of the stroke, and operates 9-in. diam. piston



End view

valves. Reversing is by steam. Cylinder lubrication is effected from two Wakefield Eureka type lubricators. The whole of the working parts of the motion and the connecting and coupling rod bushes are made of cog wheel brand phosphor bronze and lubricated by the Ajax grease system, as are also the coupled axleboxes, spring and brake gear and various other details. Compensation is arranged between the coupled wheels and inner four-wheel bogie, and all the bogies are fitted with S.K.F. roller bearings.

Other fittings include automatic couplers of the Atlas type fitted with Spencer-Moulton draft gear, Lambert's wet sanding, Gresham & Craven's vacuum brake ejector, Clyde shot blower, Stone's electric lighting and speed indicator, and Laycock's steam-heating.

The locomotives, of which the road numbers are 271 to 274, were shipped in three main pieces, and as we go to press we learn that they have already arrived, and are giving highly satisfactory results in service. As a temporary measure, we understand, they will be employed on the Bulawayo-Salisbury section (1 in 80 compensated grade) until certain existing speed restrictions between Mafeking and Bulawayo, which prevent their full use, are removed.

The loads, we are informed, have been fixed at 650 tons for mail trains and 1,150 tons for goods (2,000 lb. = 1 ton). The goods loads represent a 40 per cent. increase over that of the next largest ordinary type engine although the Beyer-Garratt engine has only a 20 per cent. theoretical increase in tractive effort. These results are doubtless due to the excellent tracking properties of the 4-6-4 + 4-6-4 type, the good boiler and improved valve gear, steam and superheater layout, all of which items have already been favourably commented on.

NEW AIR-CONDITIONED COACHES, N.W.R., INDIA

After considering the various systems of air-conditioning tried in India, the straight ice multiple unit system has been selected as best suited to N.W.R. conditions

EXPERIENCE in India has taught that maximum comfort in a railway carriage is secured by providing a combination of temperature, humidity, and air-motion control such as to limit internal temperatures between 70° and 80° in the hot weather and 60° and 70° in the cold months, with a relative humidity of from 30 to 60 per cent., and an air supply of 25 to 30 cu. ft. per min. The best results are obtained when clean, filtered, fresh air is delivered at the rate of 15 to 30 cu. ft. per min. for each passenger, with at least five complete changes of air an hour, and recirculation of conditioned air every five minutes.

Air-conditioning Systems in India

To meet these conditions three different systems of air-conditioning have been adopted by various railways in India, namely the electro-mechanical system, first introduced on the Great Indian Peninsula Railway, the ice-cum-compressor, and the straight ice multiple unit systems, both in use on the Bombay, Baroda & Central India Railway. The capital and working costs, for each coach, of the three systems have been found to approximate to the following figures:—

System	Capital	Working (per annum)
Electro-mechanical	£2,175	£390
Ice-cum-compressor	1,500	338
Straight ice multiple unit	675	278

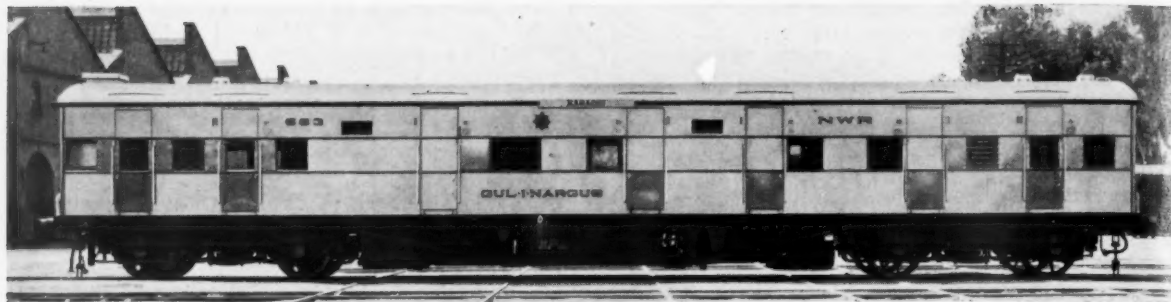
The straight ice system is, therefore, considerably the

cheapest in both prime cost and operation, but it must be remembered that the electro-mechanical system serves the double purpose of cooling in the summer and heating the air in the winter months, an advantage not shared by the two ice systems. On the other hand, the two latter provide individual temperature control in each compartment and odours are confined to a particular compartment, whereas with the electro-mechanical equipment there is common air temperature throughout the vehicle and odours are common to all compartments.

Trials and Decision to Use Straight Ice System

With the benefit of experience gained by the other railways, the N.W.R. was able to compare the three systems and select the most suitable for its requirements. Before reaching a final decision, however, trials were carried out with a straight ice coach lent by the B.B. & C.I.R. during the winter of 1938-39, to ascertain whether heating was essential on the N.W.R. system in cold weather, and, if so, whether the increased costs of the electro-mechanical system were justified. It was found that heating could be dispensed with, and that, therefore, from all points of view the straight ice system was the most suitable for the north-west of India.

Accordingly seven first and second class composite bogie coaches have been built at the Moghalpura (Lahore) shops embodying that system, though only for the first class compartments. The general arrangement and air-con-



Exterior of one of the coaches, "Gul-i-Nargus" (Narcissus). Each of the seven vehicles is called after an Indian flower

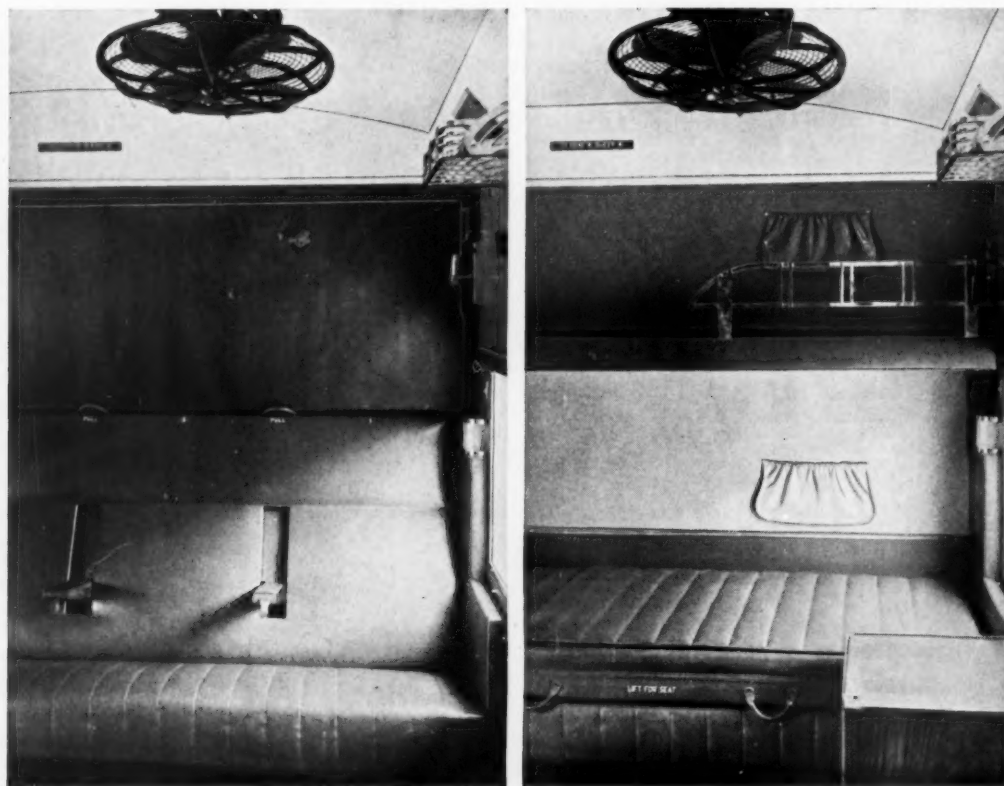
ditioning features of one of these coaches are shown in one of our illustrations.

Insulation and Water-cooling System

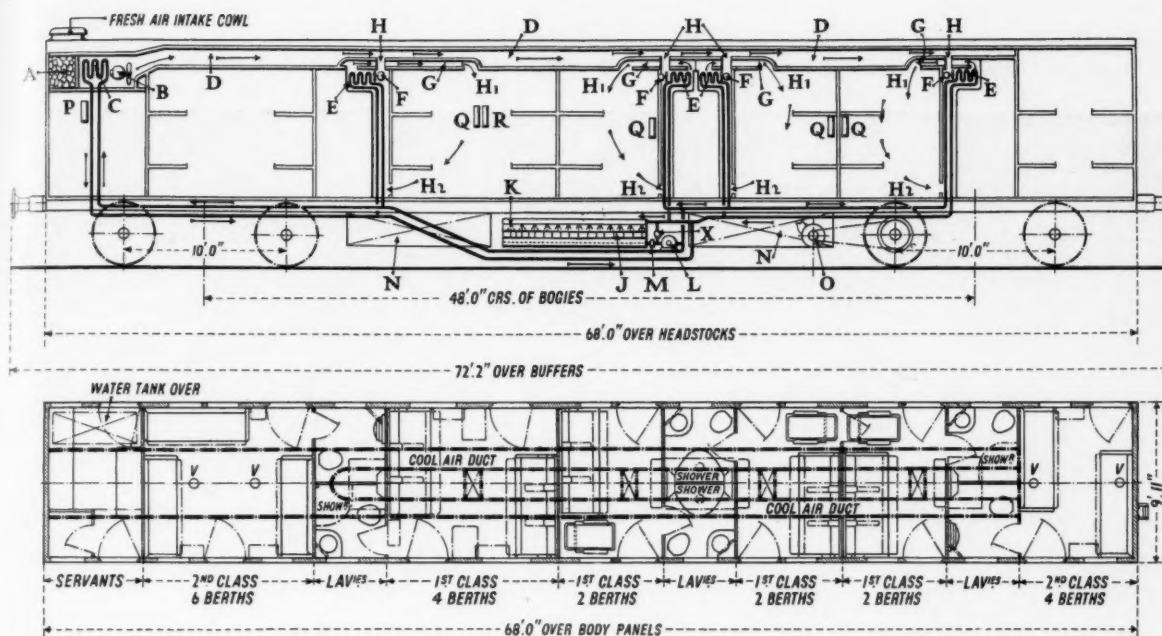
To insure that the interior is unaffected by both heat and noise outside the coach body, its roof and walls are insulated with Celotex and bagged kapok $3\frac{3}{4}$ in. and $2\frac{1}{2}$ in. thick respectively, and the floor has a $2\frac{1}{4}$ -in. layer of cork, felt, and linoleum. Air-tight doors and double glass fixed windows are provided, the outer glass being of heat-resisting Calorex, tinted green to reduce glare. Otherwise the coaches are of standard N.W.R. construction, but they are specially furnished and equipped to provide every reasonable comfort for passengers.

The general layout of the air-conditioning equipment can be seen from the accompanying diagrams. The under-slung ice-container has a capacity of $1\frac{1}{4}$ tons of ice—

which can be loaded from both sides—supported on a grille with a drainage water tank below it; the whole container is enclosed in a teak wood box with 3 in. of insulation between it and the box. The water is drawn from the tank by a centrifugal pump and forced through a removable strainer and thence round the circulating system and cooling coils, to return to the container, where it is sprayed evenly over the ice for continued use. Excess water due to melting ice is carried off through an overflow pipe. There are actually two pump sets, each driven by a 1-h.p. motor, the second being a stand-by in case of failure of the first, the change-over being automatic. The pump in action delivers 25 gal. of water a min. against a total head of 40 ft. Each pump is fitted with a thermostat-controlled solenoid diverter valve, which opens a bye-pass cutting out the spray over the ice if the temperature of the circulating water falls below a certain limit. There is



First class four-berth compartment arranged (left) for day travel and (right) for sleeping



Diagrams showing (above) skeleton side elevation and general diagrammatic layout of the air-conditioning equipment, and also (below) floor plan of one of the coaches. The letters on the former refer to the various parts as under:—

A—Visco air filter
B—Fresh air fan
C—Main cooling coil
D—Fresh air duct
E—Compartment cooling coil

F—Compartment cooling fan
G—Fresh and circulating air duct
H—Fresh air inlet to cooler unit
H₁—Air inlet grille
H₂—Air outlet grille

J—Ice tank
K—Water spray
L—Water pump
M—Water pump strainer
N—Battery-box

O—Dynamo
P—Switch board
Q—Temperature control regulator
R—Ventilator control regulator
X—Thermostatic diverter valve

a cooling cabinet for each of the four first class compartments. For the four-berth one there is a double unit silent impeller fan, driven by a $\frac{3}{4}$ h.p. motor, delivering 400 cu. ft. of air a min. over a seamless copper tubing and fin cooling coil, with a cooling area of 40 sq. ft.; a hand valve, removable strainer, and fan-speed regulating rheostat are provided. In each of the three coupé compartments is a similar cooling set, but the fan and motor are half the size and capacity of those in the large compartment. The cooling coil is, however, of 40 sq. ft. area, as for the large compartment.

Air Circulating Systems

Fresh air is drawn into the main roof duct of each coach through two Visco air filters by one of two blowers each capable of delivering 1,000 cu. ft. of air a minute. An automatic change-over relay is provided so that if one of the blowers fails the other is automatically cut in. A bush fin cooling coil at the intake cools this air so as to condense sufficient moisture during the monsoon season, thereby avoiding the possibility of condensation in the air ducts or compartments; the fresh air is thus partly cooled and dehumidified before being let into the compartment cooler cabinets, where further condensation takes place; the moisture absorbs the odours and other impurities in the air and carries them to a drip pan and drain pipe.

Compartment Cooler Cabinets and Controls

In each compartment cooler cabinet the fresh air is joined by air that has already circulated through the compartment and been reconditioned by the equipment described in the penultimate paragraph above, and the mixture passes by a duct to a grille in the ceiling of the compartment and is gently diffused with the assistance of gravity and the cooler fan. A predetermined proportion of the air is drawn through a return grille at the bottom of

the compartment partition wall, and the remainder escapes to the outside through the lavatory.

Each cooler cabinet is in the form of a push-in box unit, mounted over a lavatory, and is easily removable as a complete unit from inside the compartment. In series with each cooler unit is a thermostatically controlled solenoid valve, which is normally open for the water circulation, but when the temperature of the compartment drops below the thermostat setting, the valve is automatically closed until the temperature again rises to about 2° F. above the setting. The setting is regulated by a control regulator below the mirror in each compartment, and passengers can select a setting between 60° and 90° F., and can, moreover, regulate the air circulation by a second regulator, also fitted below the mirror. The switch gear controlling the electrical equipment of the air-conditioning plant is housed in a normally-locked case in the servants' compartment.

Other Passenger Comforts

Special attention has been given to the comfort of passengers provided by means other than air-conditioning. Interior decoration and furnishings harmonise and blend to provide a generally restful effect. Racks are provided for books and papers and for bottles and glasses, and there are tables, chairs, shelves, reading lights, and racks in the compartments, and showerbaths in the four lavatories. The seats, which are provided with armrests, are, like the squabs (or back rests), inclined at a comfortable angle, support being provided to the back where needed. For night use the squabs drop forward to form abnormally wide bunks, and, even in the four-berth compartment, the seats and berths are arranged transversely, which is unusual in India. Electric fans are provided for emergency use in case the air-conditioning fails.

Externally the new coaches are finished in aluminium livery with stainless steel fittings and raised lettering.

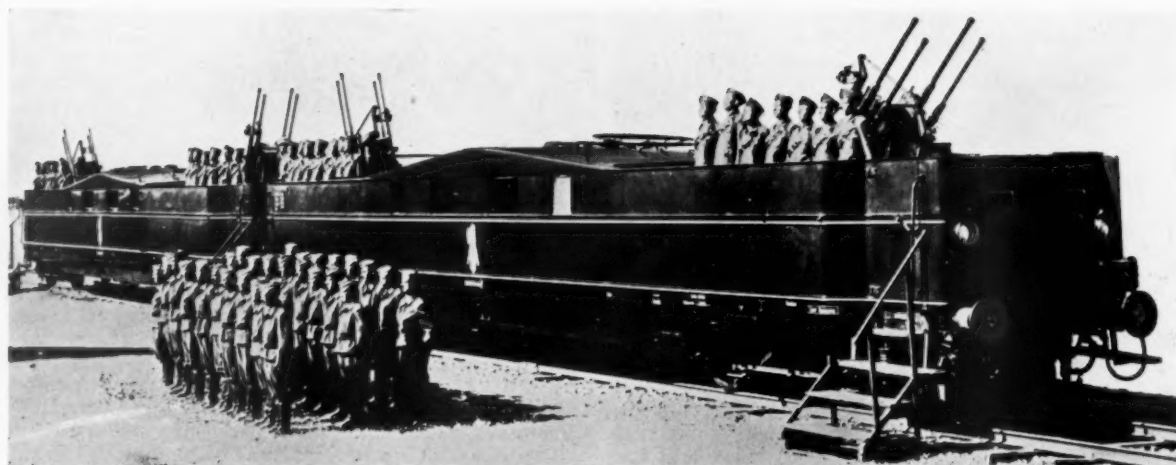
Railways and the War—31



Above: A member of one of the Railway Units of the Home Guard on patrol duty



Left: Some of the Second Canadian Division, which recently arrived in this country, leaving by railway for training quarters



German and Italian military crews mounting guard over the two-car armoured train recently presented by Hitler to Mussolini

RAILWAY NEWS SECTION

PERSONAL

Major-General A. E. Davidson, C.B., D.S.O., has been appointed Colonel Commandant of the Corps of Royal Engineers in succession to Colonel (honorary Major-General) Sir Sydney D'A. Crookshank, K.C.M.G., C.B., D.S.O., who has attained the age-limit for the appointment.

We regret to record the death on August 1 at Carlyon Bay, Cornwall, of Mr. Samuel Harry Hill Barratt. Mr. Barratt was born on March 29, 1869, was educated at Merchant Taylors School, and graduated at King's College, London. He was a pupil of the late Mr. William Adams, Chief Mechanical Engineer, London & South Western Railway, at Nine Elms works, where he passed through all departments, including the drawing office and the running department. Later Mr. Barratt went to the Ferranti works at Manchester as designer of electrical machinery and from there to St. Luke's electric light station, Manchester, as Engineer-in-Charge. He moved to Bell's United Asbestos and when that company and J. W. Roberts Limited were taken over by Turner & Newall Limited he became a Director of J. W. Roberts Limited and devoted himself especially to the railway business of that undertaking. He was also a Director of Beckett, Laycock & Watkinson Limited and a member of the Institution of Locomotive Engineers and of the Institution of Civil Engineers. He is widely remembered for the work he did in the application of asbestos in its various forms to railway work, more particularly in connection with locomotives and rolling stock. He took an active part in the lining of London tube railway tunnels to deaden noise.

The Director-General of the Ministry of Information, Sir Kenneth Lee, has resigned after giving, without remuneration, nine months of valuable and devoted service to the State in that exacting position. The Minister of Information, with the concurrence of the Prime Minister, has appointed Mr. Frank Pick to be Director-General. Mr. Pick has been engaged on special investigations for the Minister of Transport, but in the national interest Sir John Reith has agreed to release him immediately, and Mr. Pick will take office in the Ministry of Information on August 12.

Mr. Reginald Herbert Hill, C.B., who, as we announced in our issue of July 26, has been appointed Deputy Secretary to the Ministry of Transport, was born in London on November 27, 1888, and was educated at the Merchant Taylors School, and St. John's College, Oxford. Mr. Hill entered the Railways Department of the Board of Trade in 1912, and in 1919 became Private Secretary to Sir



Photo

Lafayette

Mr. R. H. Hill, C.B.

Appointed Deputy Secretary to the Ministry of Transport

Eric Geddes during the formation of the Ministry of Transport. In 1927, Mr. Hill became Assistant Secretary (Finance Department), Ministry of Transport, and in 1934 Principal Assistant Secretary. When the re-organisation of the Ministry took place in 1937, Mr. Hill was appointed Principal Assistant Secretary in charge of Public Utilities, Finance, and Statistical Departments. He has been Railway Control Officer since the Minister of Transport assumed control of the railways on September 1, 1939. Mr. Hill was made a C.B. in 1933.

Mr. Fred. E. Jones has been appointed Commercial Assistant to the Irish Traffic Manager, L.M.S.R., Dublin.

We regret to record the death on August 1 of Mr. Ludford Charles Docker at the age of 79. Mr. Docker was one of the founders of Docker Brothers, the paint and varnish manufacturers. Mr. Docker was also at one time a Director of the Metropolitan-Cammell Carriage & Wagon Co. Ltd.

LONDON TRANSPORT STAFF CHANGES

DEPARTMENT OF THE ENGINEER-IN-CHIEF

After many years of service, Mr. L. E. Harvey, Technical Investigation Officer (Trams & Trolleybuses) and Mr. H. S. May, Superintendent of Rolling Stock (Trams & Trolleybuses) retired from the service of the London Passenger Transport Board on August 1. Mr. J. Lunn and Mr. B. Smithin have been appointed officers of the board as from August 4. Mr. Lunn is Assistant Works Engineer (Charlton) and Mr. Smithin is appointed Engineering Superintendent (Trams & Trolleybuses).

Mr. J. Lunn entered the passenger transport industry in 1901 as an out-door supervisor for G. F. Milne & Company, which built many of the early electric tramcars. In 1904 he was appointed to the staff of the West Ham Corporation Tramways by Sir H. E. Blain, General Manager, and prior to the board taking over, held the position of Rolling Stock Engineer. In 1936 Mr. Lunn was appointed Assistant Works Engineer at the main tram & trolleybus works at Charlton. He has been a member for many years of what is now the Public Service Transport Association and he has made many friends in the passenger transport world.

Mr. B. J. Smithin, who was appointed an officer of the board on August 4, with the title of Engineering Superintendent (Trams & Trolleybuses), served his apprenticeship at the railway signal works of Dutton & Company, Worcester. He gained experience in the works and drawing offices of J. F. Pease & Co., Heenan & Froude Limited, the Brush Electrical Engineering Co. Ltd., and Mountain & Gibson Limited. Mr. Smithin joined the Tramways Department of the London County Council in 1910 as a draughtsman at Charlton works, and in 1912 was transferred to head office as a Technical Assistant in the Rolling Stock Section. Upon the formation of the board in 1933 he was appointed an Assistant on the Technical

Staff of the Chief Engineer (Trams & Trolleybuses).

Mr. Lionel Edward Harvey, Technical Investigation Officer of London Transport trams & trolleybuses, retired from the board's service on August 1. After three years at the City & Guilds Central Institute, and one year as an improver with Crompton & Company, of Chelmsford, Mr. Harvey joined John Mowlem & Company and worked on the construction of the Waterloo & City and the City & South London Railways. He was with Messrs. O'Gorman & Cozens Hardy for a year and a half and with R. W. Blackwell & Company for two years. In 1902 he was placed in charge of the overhead construction of the Halifax Corporation Tramways and in 1904 was appointed Resident Engineer & Deputy Manager of the Sunderland Corporation Tramways. The South Shields Corporation appointed him General Manager & Engineer of its tramways in 1908 and in 1912 he transferred to the Ilford Corporation Tramways in a similar capacity. He was with the Ilford tramways for 20 years until the board was formed in 1933, when he became Technical Investigation Officer (Tramways). In 1936 his responsibilities were extended to trolleybuses. Mr. Harvey is an Associate Member of the Institution of Electrical Engineers, a Member of the Institute of Transport, and a Member of several committees of the British Standards Institution.

Mr. H. S. May, the Superintendent of Rolling Stock of London Transport trams & trolleybuses, retired from the service of the Board on August 1. Mr. May obtained engineering and shop



Mr. A. L. Gibson

Appointed Acting Passenger Manager, Southern Area, L.N.E.R.

experience with Brighton Corporation and with Weyman & Hitchcock, of Cheltenham. After service as Meter & Testing Superintendent of the Blackpool Corporation electrical works, he assisted in the change over from conduit to overhead trolley system, and was appointed in 1899 Resident Engineer of the Blackpool Corporation Tramways. In 1908 he joined the London County Council as Assistant Rolling Stock Superintendent and, when the board was established in 1933, he became Superintendent of Rolling Stock (Tramways). In 1936 his responsibility was extended to trolleybuses.

Mr. H. R. Webb, who, as announced in our July 12 issue, has been appointed Principal Assistant to the Stores Superintendent, Great Western Railway, entered the service of the railway in July, 1903, in the Wolverhampton stores. He was transferred five years later to Swindon. Mr. Webb was a keen student of accounts, and was attached first to the audit section and subsequently to the accounts section, with the re-organisation of which, including the introduction of mechanical methods, he was closely associated. He was appointed Clerk-in-Charge of Accounts in 1923, and Assistant to the Stores Superintendent in 1929. Mr. Webb holds the Royal Society of Arts silver medal, and numerous certificates of the

R.S.A. and the London Chamber of Commerce, and also obtained distinction at the London School of Economics in accounting and business methods, and commercial and contract law.

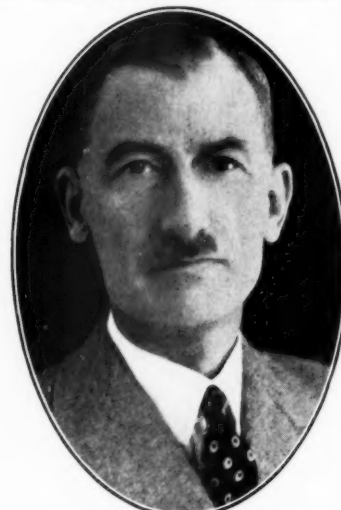
Mr. Archibald Leslie Gibson, who has been appointed Acting Passenger Manager, Southern Area, L.N.E.R., on the retirement of Mr. C. J. Selway, entered the service of the Great Eastern Railway Company in 1899 in the General Manager's office. Ten years later he was deputed to make a special study of suburban traffic problems, and many of the special measures taken in regard thereto by the Great Eastern Railway at that time were based on his recommendations. He was engaged subsequently upon other special investigations and in various branches of the work of the department, and eventually became Principal Assistant. He also took an interest in editing the *Great Eastern Railway Magazine*. During the 1914-1919 war, Mr. Gibson was on special duties in Paris. In 1919-20 he was attached temporarily to the company's general Continental agency, which business took him to various parts of the Continent. In July, 1920, he was appointed Assistant Continental Traffic Manager, and in

March, 1924, Continental Traffic Manager (South). He became Continental Traffic Manager in March, 1930, and we understand that he will still carry on any work left to the Continental Traffic Manager. Mr. Gibson was appointed on a special sub-committee (Railway Clearing House) to examine the Conventions of the International Régime of Railways and the International



Mr. H. R. Webb

Appointed Principal Assistant to the Stores Superintendent, G.W.R.



Mr. F. R. Hawkes, O.B.E., V.D.

Chief Commercial Manager, North Western Railway (India), 1932-1940

Régime of Maritime Ports. He was also nominated a member of the permanent sub-committee to report on international railway questions, and is a delegate of the International Union of Railways. He was closely associated with the management of the Harwich-Zebrugge train ferry service from its inception. Mr. Gibson is the holder of Netherlands, Danish, and Belgian decorations.

Mr. F. R. Hawkes, O.B.E., V.D., whose impending retirements from the position of Chief Commercial Manager, North Western Railway (India), we

recorded in our issue of August 2, began his service with the North Western Railway in October, 1904. He became Assistant Traffic Superintendent in 1906, and District Traffic Superintendent in 1912, and from 1914-15 was attached to the Indo-Burma Connection Surveys. Mr. Hawkes joined the Indian Army Reserve of Officers in October, 1915, and proceeded to Mesopotamia; from July, 1916, he was attached to Mesopotamia Railways. He returned to the North Western Railway in January, 1920, and was posted as District Traffic Superintendent, Karachi Port. In November,

1927, he was promoted to be Divisional Superintendent, and finally to be Chief Commercial Manager in December, 1932. Mr. Hawkes was appointed Chairman of the North Western Transport Co. Ltd. in July, 1938. For some months, early in 1939, Mr. Hawkes officiated as a Member of the Railway Board. From April, 1934, until April, 1938, Lt.-Colonel Hawkes was Honorary Aide-de-Camp to the Viceroy, with rank of Honorary Colonel from July 7, 1936. Mr. Hawkes, as already announced, has been granted 4½ months' leave preparatory to retirement, as from May 24.

Deraiment of New York—Chicago Express

Findings of reports on the Little Falls accident on April 19

The Interstate Commerce Commission's Bureau of Safety has issued its report on the derailment of the New York Central Lake Shore Limited at Little Falls, 216 miles from New York, on April 19. The circumstances of the accident were described in our issue of May 24 (page 740), and it may be recalled that the train—one of the company's principal New York—Chicago expresses—left the rails near the beginning of a 14½-ch. curve over which a 45 m.p.h. speed restriction was in force, and crashed into a stone wall, with the result that 26 passengers and 5 members of the crew lost their lives and 51 persons were injured. The locomotive was of the Hudson or 4-6-4 type.

The train was travelling at 59 m.p.h., and the report attributes the accident to the failure of the driver to reduce speed sufficiently, and to the "run-in of slack, due to too sudden a closure of the throttle." There are two signals, located about 9,000 ft. and 3,000 ft., respectively, east of the curve, which display restrictive indications requiring forestalling of the train control apparatus. "It was the practice for the engineman to make a brake-pipe reduction about 3,000 ft. east of the point of accident, sufficient to reduce the speed to about 45 m.p.h. before the engine reached the curve, and to release the brakes just before entering the curve; according to instructions, the throttle was left open so that the train would enter and round the curve smoothly."

According to the evidence, the train was travelling at 59 m.p.h., or about 19 m.p.h. less than overturning speed, when the locomotive became derailed and overturned to the outside of the curve; derailment marks indicated that the engine began to overturn before derailling. A locomotive inspector who was on the footplate at the time stated that the driver (who was killed) forestalled at both restrictive signals approaching the curve, but after passing the second signal did not make a sufficiently heavy brake application. The inspector warned the driver, and instructed him to make a further brake-pipe reduction. Instead of doing so,

however, the driver closed the throttle suddenly, with the result that the impetus of the heavy train on the suddenly-retarded engine, gave rise to a "jack-knife action," tending to push the rear of the engine outwards.

"The sudden force," says the report, "would be dissipated in a tangential line, which would be to the outside of the curve. The tendency of the spring-borne load of a moving vehicle, when speed is being rapidly retarded, is to incline forward and downward; this action results in weight being shifted from the rear end to the front end, and it is probable that this action occurred immediately after the engineman closed the throttle. Because of the excessive speed, there was a shifting of weight from the low rail to the high rail, resulting in about 75 per cent. of the weight of the engine being carried on the high rail. From the foregoing, it appears that a sudden run-in of the

train, combined with the excessive speed, was sufficient to overturn the engine, or to lift the wheels of the rear end of the engine over the outside rail without marking it."

The report of the Public Safety Commission, however, finds "no evidence that this accident was caused by anything but excessive speed." It observes that the engineman was well qualified, had a good service record, and had observed the speed restriction on previous trips; but that, for some unknown reason, he released the brakes when the speed was reduced to 59 m.p.h., and did not apply them again. The driver was 67 years of age, and it is suggested that he had a mental lapse on finding that he "had not decreased the speed enough, and, not wanting to apply the brakes on the curve, was at a loss to know just what to do." The commission considered the possibilities of reducing the curvature at the spot, and also of transferring high-speed trains to the parallel West Shore line, on the other side of the Hudson river, but found that both were ruled out by prohibitive costs.

Staff and Labour Matters

Contract of Employment

The House of Lords allowed, on August 1, an appeal by Mr. Tom Nokes, coalminer, of Butcher Street, Thurnscoe, Yorkshire, against Court of Appeal and King's Bench Divisional Court decisions affirming magistrates at Doncaster who had fined him 10s. with costs, for absenting himself from Hickleton Main colliery on October 7, 1937. Nokes's defence was that his contract of service was not with Doncaster Amalgamated Collieries Limited, at the instance of which the summons against him was issued, but with the Hickleton Main Colliery Company, which had been absorbed by Doncaster Amalgamated Collieries. An Order had been made in the Chancery Division under Section 154 of the Companies Act, 1929, transferring all the property, rights, and liabilities of the Hickleton Company to Doncaster Amalgamated, and the question raised by the appeal was whether that transfer included Nokes's contract of service.

The Lord Chancellor (Lord Simon) said the result contended for Doncaster Amalgamated Collieries would be at

complete variance with a fundamental principle of common law that a free citizen was entitled to choose his employers, so that the right to his services could not be transferred from one employer to another without his assent. He had come to the conclusion that contracts of personal service were not automatically transferred by an Order under Section 154. Lord Atkin, Lord Thankerton, and Lord Porter agreed with the Lord Chancellor. Lord Romer delivered a dissenting judgment.

Forthcoming Meetings

- Aug. 13 (Tues.).—Weymouth & Portland Railway Company (Ordinary half-yearly), Regis House, King William Street, E.C.4, at 2.30 p.m.
- Aug. 15 (Thurs.).—La Guaira & Caracas Railway Co. Ltd. (Ordinary general), Dashwood House, E.C., at noon.
- Aug. 15 (Thurs.).—Dorada Railway Co. Ltd. (Ordinary general), Dashwood House, E.C., at 12.30 p.m.
- Aug. 15 (Thurs.).—Nyasaland Railways Limited (Annual general), 3, Thames House, E.C.4, at 2 p.m.

TRANSPORT SERVICES AND THE WAR—50

Facilities for troops at stations—Travel warrants—Restrictions on employment of aliens—Precautions taken on railway bridges—Paris transport—Argentina and the war—Dominions and the war effort—World air lines

Within the past few days a considerable amount of public attention has been directed to the activities of the railway units of the Home Guard (formerly L.D.V.) organisation, and some of the daily newspapers seem to have assumed that this is a new activity on the part of the British main-line railway companies. Actually, as we have recorded in these columns, the railway companies provided among the earliest and most enthusiastic responses to the broadcast appeal on May 14 of the Secretary of State for War to establish this new force for home defence. In particular we would refer to pages 873-4 of our June 21 issue where we gave some details of the steps already taken by the Southern Railway and the L.M.S.R.

It has just been announced that, on the L.N.E.R., over 23,000 men have volunteered for service in the Home Guard organisation, and about 800 vulnerable points on the company's system are guarded. The L.N.E.R. organisation forms an important part of the nation's Home Guard, and in some cases co-operative manning with non-railway units is in force in order to avoid waste and duplication. Volunteers vary in age between 17 and 65 and appointment depends solely on willingness to serve and fitness to command. The utmost keenness prevails and many of the men are putting in considerably more than the minimum hours which are expected of them, besides spending much time in musketry and drill. Many of the ex-servicemen among the volunteers fought in the trenches during the last war and are now giving the benefit of old experiences to the younger element.

Facilities for Troops at Stations

As a result of the debate initiated by Mr. David Robertson (Streatham—C.) in the House of Commons at the end of June, improvements are being made at railway stations in the provision of facilities for Servicemen. Canteens, kitchens, rest-rooms, cloakrooms, washing accommodation, and inquiry bureaux for troops waiting for trains, are to be provided at all main-line railway termini in London. Plans have been completed by an inspection committee of the War Office and by the Ministry of Transport, under the supervision of Mr. C. R. Attlee (Lord Privy Seal), on behalf of the War Cabinet. Command Welfare Officers have received instructions to report on conditions at railway stations within their areas, with a view to similar facilities being provided at all important railway centres. The War Office has given in-

structions that in future only troops and Home Guards in uniform or wearing brassards are to be served at the railway canteens and allowed to use other facilities. The arrangements made with the Railway Executive Committee provide that these canteens, rest rooms, etc., shall be given rent free to the Y.M.C.A., Salvation Army, and other organisations running them, and that the railway companies shall be reimbursed for the rent by the War Office.

Leave Travel

As some misapprehension seems to exist about travelling facilities in Great Britain for soldiers on leave, the War Office has issued a statement making clear that the position is that all ranks are entitled to two free travelling warrants yearly, and privilege leave is admissible twice yearly for a period of seven days. Personnel of the British Expeditionary Force and the North-West Expeditionary Force were granted a free warrant in addition to those to which they are normally entitled.

Restrictions on Employment of Aliens

The Home Secretary has recently made an Order under the Aliens Order, 1920, prohibiting the employment of aliens of all nationalities in certain scheduled places, industries, and establishments, unless permission has been obtained to enter or continue any such employment. The Order applies, *inter alia*, to the following employments:—

Any place which is a prohibited place under the Official Secrets Acts or a protected place under the Defence (General) Regulations, 1939.

The transport of arms, explosives, ammunition, chemicals, petrol, fuel or lubricating oil, and many other articles and substances.

Any gas, water, or electricity undertaking.

Any railway or other company engaged in the provision of transport for His Majesty's Forces by sea or land.

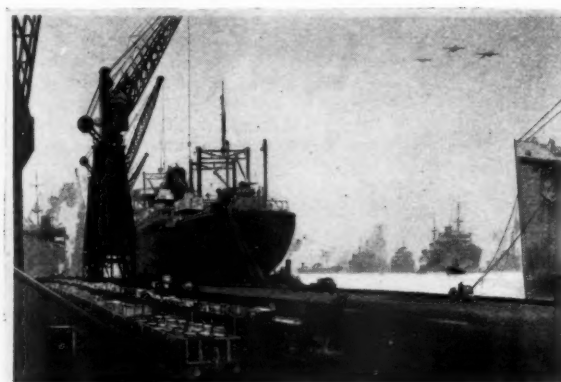
Any air transport company.

The expression "company" includes any person or body of persons, whether incorporated or not; and the expression "employment" in relation to any place or premises includes employment, whether by the occupier of the place or premises or not, on any work therein. Application for the necessary permit to employ aliens must be made by the employer to



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Two of the most recent Railway Executive Committee posters produced by the L.N.E.R. Advertising Manager.

the Aliens War Service Department, Box 666, Parliament Street B.O., London, S.W.1.

The Forth and Tay Bridges

The L.N.E.R. has now issued an Order that on and from Friday, July 26, passengers travelling by trains crossing the Forth and/or Tay bridges will not be permitted to take with them into compartments any luggage or other article of greater dimensions than an ordinary-sized attache case, but will require to place such in the guard's van. Luggage and articles placed in the guard's van will not be accepted unless properly labelled with the name and address of the passenger. In any case of dispute the decision of the company's servant will be final. The railway company reserves the right to examine all luggage carried in trains crossing the Forth and/or Tay bridges.

Third Class Signs on L.N.E.R. Carriages

As a wartime economy measure, the designation "3" or "Third Class" is to be omitted from the doors of all L.N.E.R. third class compartments under construction or sent to the workshops for overhaul and repainting. Third class passengers will be able to travel in all compartments except those marked first class. Paper transfers are employed by the L.N.E.R. to indicate the class, and the abandonment will eventually result in a considerable saving of paper, as some 150,000 doors are involved.

Out-of-gauge Loads on the L.M.S.R.

During the past four months the L.M.S.R. has been required to handle some 650 loads needing to be conveyed as exceptional consignments either because of their great weight or through being too wide or too high for ordinary working. We understand that this large number of exceptional loads is due entirely to war conditions and to intensified industrial output. Among the large loads carried were a steel girder 75 ft. long, conveyed between two Scottish stations; two other girders, each over 66 ft. long, from South Wales to a North-East port; a 96-ton steel casting, over 10 ft. wide, from Sheffield to a West Coast port; and an electrical transformer weighing 105 tons.

The Railways of France

The Italian railway offices are being transferred from the old frontier station of Ventimiglia to Mentone, according to a British United Press message. It was added that a new station at Mentone was opened on August 5 by Signor G. H. Venturi, the Italian Minister of Communications.

According to a broadcast from Lyons on August 1, the German authorities have lifted the ban recently imposed on traffic between the occupied and unoccupied zones of France. It was stated that this will enable the repatriation of both French and Belgian refugees to be resumed.

The German forces are stated to have taken from Lyons, during their three weeks of occupation, goods to the value of more than one thousand million francs. These are said to have been removed from the city in 140 trains, most of which were not returned, so that it is assumed that the rolling stock is being retained for service in German-occupied zones.

The closure of the frontier between German-occupied France and Switzerland from August 4 has been announced on the German radio. This section of frontier had provided the only means of access between German-occupied France, unoccupied France, and Switzerland.

Paris Metro

From the outbreak of the war, the Metro has handled very heavy traffic due to the withdrawal of buses for military and evacuation needs. Latterly the Metro is stated to have served 90 route miles and 211 stations, compared with the peacetime 110 miles. At the time of the German entry, it is understood that 58 Paris Metro stations had been equipped as air raid shelters, with accommodation for about 300,000 persons. In the early days of the war a plan was prepared for using the whole 50 miles of Paris Metro tunnel for air raid shelter, but as the tunnels are mostly near the road surface and would have needed such protection as 6 ft. of reinforced concrete above them, it was decided to limit shelters to deeper-

level stations. As a protection against gas attack, series of air locks were provided experimentally at some points. The principle adopted was to raise the air inside the station to a pressure considerably above that of the outside atmosphere. Ingress and egress through the series of locks would thus be possible without permitting gas to penetrate to the shelter.

Transport in Germany

Some idea of the damage which is being inflicted on the German transport system by the continuous raids of the R.A.F. has been given recently in various Air Ministry bulletins. During the past three months well over a thousand raids have been carried out by the R.A.F. on Germany and German-occupied territory. An analysis of these shows that 275 attacked communications, including railways and goods yards, strategic roads, and canals; 258 were on docks, harbours, etc.; and 161 were on such industrial targets as petrol and fuel-oil tanks. Naturally the available particulars give little precise information other than the names of such important junctions and marshalling yards as Hamm and Soest which have been attacked time and again, but R.A.F. reconnaissance aircraft have reported that the total damage caused to the German railway system was sufficiently extensive to have resulted in widespread disorganisation and that increasing use was being made of the canal system. Accordingly, a special effort was made to attack the double aqueduct where the Dortmund-Ems canal crossed over the River Ems. Models of the aqueduct were constructed and picked crews received special instructions on the method of attack to be adopted. Eventually a bright moonlight night in mid-July was selected for the attack, and subsequent photographic reconnaissances revealed that considerable success had been achieved in damaging the aqueducts and adjacent sections of the canal.

It is reported that the damage to rail and road communications in western Germany has resulted in many trains bound for Germany with Dutch butter and vegetables being compelled to return to Holland on encountering severely damaged railway tracks. Lorries bound for Germany from Holland have met similar obstacles on the main roads.

It has been reported from various sources that railway traffic through the Brenner Pass was suspended on July 10, as the result of damage by R.A.F. bombers. In announcing officially the suspension of traffic, the Reichsbahn authorities stated that several goods wagons loaded with munitions had exploded. No report has yet reached us of the resumption of traffic.

The German-Swiss Frontier

On July 30 it was reported that the entire frontier between Switzerland and Germany had been closed by order of the German authorities, and that passengers were allowed to cross only at St. Margrethen. A subsequent statement indicated that goods traffic was still being conveyed at all points, subject to the frontier restrictions which have applied since the beginning of the war.

The German-Russian Frontier

Frontier tension between Germany and Russia is suggested by various reports from Balkan sources, but whether these are genuine, inspired, or "wishful thinking" cannot be determined. According to a Belgrade message of July 21 the goods station at Minsk, where the Russian oil is transferred from the broad-gauge Soviet tankers to the narrower German ones, was partly destroyed on July 6. This was stated to be the second serious accident which had occurred there within a few weeks. Sixteen Soviet tankers crashed into a German train and the oil was spilled from them and burned, destroying the larger part of the station and many lines. The goods station at Minsk is reported to be useless, and in consequence trains have to make a *détour* to Homel, 300 km. distant, in order to transfer the oil. Although Soviet Russia attributed both the accidents to sabotage by the Poles, German officials allege that the sabotage was committed by Russians. At about the same time several portions of the railway track between Minsk and Warsaw were said to have been damaged by Polish sabotage. The German Official News Agency announced on June 15 that a new agreement for the settlement of frontier incidents between Germany and Russia had

been signed on June 10 in Moscow, and provided for the settlement of quarrels and incidents along the frontier established on September 28, 1939. "The negotiations, which lasted a month, were conducted in a friendly manner," the statement added.

Railways in Roumania

It was reported from Budapest on July 28 that Soviet troops in Bessarabia have installed several hundreds of pontoon bridges across the River Pruth which marks the new Russian frontier with Roumania. Ten days earlier it had been stated that Russian troops had occupied twelve new Roumanian districts in the unceded Moldavian region of Dorohoi, adjoining Northern Bukovina. About this period many cases were alleged of Jews being thrown out of trains in Roumania in retaliation for alleged Jewish treatment of Roumanian officials and soldiers in Bessarabia.

It is understood that the Soviet Government is still dissatisfied about the response of the Roumanian authorities to Soviet demands for the return of locomotives and rolling stock alleged to have been withdrawn by the Roumanians from Bessarabia and Northern Bukovina before the Soviet occupation of those territories, and contrary to the Roumanian-Soviet agreement of June 27 to hand over intact all railways and rolling stock (see our issue of July 5, page 20). Northern Bukovina has now become part of the Ukrainian Soviet Republic with Kiev as its capital, while Bessarabia is now part of the new Moldavian Soviet Republic with Kishinev as the capital. Reports from travellers recently returned from these areas state that gauge conversion of the railways to the Russian standard of 5 ft. has already been completed.

At the request of Germany the Roumanian Government commandeered on August 1 the entire stock of railway tank wagons employed on the Roumanian Railways. There are estimated to be some 3,000 of such wagons, and the Government announcement said that they were needed for army transport, for internal distribution, and for export services. Several of the oil companies to which these wagons belong are owned by British capital.

Bessarabia, the principal province concerned in the long-standing dispute between Russia and Roumania, was part of the Roumanian principality of Moldavia until its annexation by Russia in 1812. After the Crimean War in 1856 Russia was forced to return Bessarabia, but re-took it in 1878 after the Russo-Turkish war. It was not until 1859 that Roumania itself secured the beginning of its national independence by the union of Wallachia and Moldavia. In 1878 a portion of the Dobruja was added to Roumania, and the latter became a kingdom in 1881. The remainder of the Dobruja was allotted to Roumania after the Balkan war of 1913. After the world war of 1914-19, Roumania expanded very considerably, and it is mainly the territories then secured that are in dispute with her neighbours. Bukovina was secured from Austria and Transylvania from Hungary—a point of some importance as, although Austria and Hungary were linked in one empire under the Double Eagle, they remained separate thrones, and in fact, Hungary still regards itself as a monarchy without a king, calling the head of the State the Regent. Bessarabia was taken from Russia by Roumania in 1919 and has remained in Roumanian hands until the Russian advance of June 28 last. For many years the friction between Soviet Russia and Roumania about the Roumanian occupation of Bessarabia resulted in the complete severance of communications between the two countries, and it was only on October 18, 1935, that the first railway connection, across the River Dniester between Tighina and Tiraspol, was restored, as recorded at page 696 of *THE RAILWAY GAZETTE* of October 25, 1935. The bridge had been partly destroyed in 1919, and remained unusable until agreement between Roumania and Soviet Russia was reached in the early part of 1935. Both 4 ft. 8½ in. and 5 ft. gauge lines were then laid between Tighina and Tiraspol across the repaired structure.

Argentina and the War

The difficulties of Argentina, its Government, and its people, in connection with the war, increase as time goes on.

Those which have been added lately to the original ones include the growing shortage of fuel and the entry of Italy into the war, with the consequent cutting off of the Mediterranean countries as potential contributors to Argentina's Custom House receipts and purchasers of her products. Then there is the Fifth Column trouble aimed against Argentina's sovereignty, which has been accentuated by the German successes in Europe, aided and abetted by all sort of rumours, some of which are entirely unfounded. The Government has submitted a Bill to Congress providing for the suspension, for the duration of the war, of the granting of Argentine citizenship to nationals of countries engaged in the conflict, in order to restrict the activities of totalitarian-minded entities in the country, and placing under certain restrictions the activities of the press in general, especially those papers published in foreign languages. The Bill is now before Congress and it is expected to come into force shortly. Exception has been taken, however, to the virtual muzzling of the press which it involves, and some of the Government's proposals in this connection have been amended by the Chamber of Deputies. Further comment on this subject will be deferred until such time as Congress has given its final pronouncement on the matter in terms of law. In the neighbouring Republic of Uruguay, an official enquiry is proving that there German subversive activities are even more pronounced and serious.

In connection with the fuel shortage, the Argentine Government has already taken the matter up seriously, and in addition to other measures making for economy, brought summer time into force on July 1 (mid-winter). The railways have been circularised as to the necessity for curtailing their services still further, and asking them to submit their proposals in this sense. A committee has been set up to make further suggestions which will result in economising the country's fuel supplies. More serious still for Argentina is the way in which it has been hit by the successive invasions by Germany of European countries with which the Argentine Republic formerly maintained large-scale commercial relations. A hint of the difficulties to come is already apparent in the fact that the May exports (the latest available), on a value basis of comparison, are the lowest so far recorded this year.

The extension of the war to Italy and the Mediterranean has introduced a new set of factors into the conduct of overseas trade between South American and European countries, well calculated to produce a sudden and drastic reduction in the volume of that trade. Argentina's loss in this respect cannot but be severe. Among these factors are the following:

1. Italy's disappearance from the statistical record of export from Argentina and other Latin-American countries.
2. The application of the British blockade to the Mediterranean against Italy and all shipping seeking to reach Italian ports.
3. The conduct of hostilities in Mediterranean waters to the virtual exclusion of all trade with countries served by this trade route, e.g. Albania, Jugoslavia, Turkey, and Greece.
4. The elimination of the Italian mercantile marine from the River Plate and Latin-American trade routes and the consequent accentuation of the shipping shortage.

Thus, considering the list of European countries with which Argentina trades, the effect of the extension of hostilities to the Mediterranean must be the virtual severance of commerce between Latin-America and all countries which the sea routes of the former serve, just as trade with the still neutral Baltic countries has been severed as a result of Germany's invasion of Norway and occupation of Denmark. Countries which previously purchased from Argentina approximately five hundred million pesos of merchandise yearly are now cut off as clients because of the operation of blockades and counter-blockades, and the only European countries still open to Argentine exports are the United Kingdom, Eire, Switzerland, Spain, and Portugal.

Up to the end of June, since the outbreak of war, the loss of certain European markets has been compensated by the increased demands of others; but the loss of the Mediterranean markets now offsets this. So serious a diminution in the Argentine export trade must necessarily result in a corresponding restriction in the volume of imports; and the fact that Argentina has practically shot its bolt for this year as

regards the exportation of wheat, while shipments of canned meat and wool are on a much smaller scale than they were at the same time last year, also adversely affects the country's revenue. During the seven months, June to December, 1939, Argentina exported approximately three million tons of wheat, and the exportable balance at present is a little over 500,000 tons. Of course, this has nothing to do with the war, being due to unfavourable climatic conditions, but the state of affairs in Europe can certainly be held responsible for the fact that Argentina has seven and a half million tons of maize on its hands, due to lack of buyers and bottoms to carry it in. It is highly probable that a considerable amount of this grain will be used for fuel locally, as happened during the last European war. Purchases by Italy of 350,000 tons of maize to be shipped at the rate of 50,000 tons a month until the end of the current year have been cancelled in consequence of the entry of that country into the war.

Canadian Railway Workers

Canadian railway workers are being exempted from Canadian conscription for home defence. Early in the war recruiting officers were instructed not to enlist certain classes considered engaged in vital services. Enlistment of civil engineers was restricted to those who might be required as officers of engineer units, and of medical doctors to those required as medical officers.

St. Malo Railway Works, Quebec

The St. Malo shops at Quebec City, recently taken over from the Canadian National Railways by the Dominion Government for the production of war materials, have been in operation for the past twenty years. During 1939 a total of 352 was employed at salaries totalling \$562,594. The original cost of the shops in 1917 was \$1,872,780, and the cost up to the end of 1939 amounted to \$2,793,471.

Double News Bulletins for Canadian Travellers

In view of the march of world events, bulletins for travellers on long-distance trains of the Canadian National Railways are now being issued four times daily. Hitherto bulletins have been prepared night and morning on board the Continental Limited between Montreal, Toronto, and Vancouver. The service has now been increased by noon and late night bulletins. This news service is particularly welcome to travellers in areas where newspapers are not immediately available for distribution.

A Canadian Hospital Car

Officials of the Canadian Departments of National Defence and Pensions and National Health on July 10 inspected a newly-equipped hospital car built by the Canadian National Railways and on display at Union station, Ottawa. The car will be used in Canada to transport wounded returning from overseas to base hospitals in various military districts throughout the Dominion. This vehicle, which is finished in Canadian National green livery, bears the designation "Hospital Car" and the emblem of the International Red Cross. It is the first of the new mobile hospital units for Canadian service, and was equipped in the company's Montreal shops with eight hospital cots, eight upper berths for less serious cases, a room capable of accommodating three nurses, a doctor's office, a generous linen cupboard, a kitchenette complete with gas ranges and refrigerators, a dispensary, and an ante-room for surgical dressings.

More Dominion Troop Arrivals

The Sydney, N.S.W., radio station recently announced the safe arrival in England of A.I.F. reinforcements, including railway and forestry units who left Sydney on May 22 in technical detachments.

An illustration reproduced at page 150 shows some of the Second Canadian Division, which recently arrived in this country, leaving by railway for training quarters. The Division includes a number of U.S.A. citizens.

The Liverpool—Dublin Air Line

It would appear that as a result of a recent official order issued by the Government of Eire, prohibiting the flight of civil aircraft over Irish territory except by special licence,

misunderstanding has arisen concerning the Irish Liverpool—Dublin air line. There has been no interference whatever with the normal activities of Aer Lingus, which continues as usual to operate regular weekday services between Dublin and England.

On August 5, however, the English terminus of the Irish Channel air line was changed from Liverpool (Speke) to Manchester (Barton). This service is worked by West Coast Air Services Limited, which maintains morning departures from Manchester and afternoon departures from Dublin; and by Aer Lingus Teoranta, which operates from Dublin in the morning and from Manchester in the afternoon.

European Air Lines

Aircraft of the British Overseas Airways Corporation are leaving England for Lisbon thrice weekly, fully laden with passengers and mails.

The German authorities in Oslo announced that passenger air services between Oslo, Copenhagen, Berlin, and Amsterdam were resumed on July 29. The Official German News Agency stated on July 17 that an air mail service had been opened between Germany and Spain, *via* Lyons. It has since been reported that a passenger air line between Switzerland and Spain, *via* Lyons, is working. A Berlin—Stuttgart—Barcelona air line was resumed on August 7.

The twice-weekly Italian air service from Brindisi to Athens and Rhodes was reopened during the first week in July.

World Air Lines

Since the beginning of July, air mail correspondence from Great Britain to South American countries is being sent by the Pan-American North Atlantic air line, and thence by rail or air from the U.S.A., as the French air route from Europe to South America has been suspended.

The British air mail service between Hong Kong and Bangkok, maintained twice weekly with landplanes, was suspended during the first week in July. Mail from Hong Kong has since been carried *via* Chungking in aircraft of the China National Airways Corporation, connecting at Rangoon with the British air lines. The inauguration of a new air mail service from China to Europe, *via* the U.S.A., taking 15 days, was announced on July 1 by the Chinese Post Office at Chungking (see our July 26 issue, page 104). From Hong Kong the mail is flown to San Francisco by Pan-American Airways, thence by air to New York, and then across the North Atlantic to Lisbon.

A Far-Eastern air line, 1,200 miles long, was opened on July 10 between Habarovsk and Petropavlovsk on the Island of Kamchatka. This service links an important junction on the Trans-Siberian Railway with the principal port of Kamchatka.

On Monday, July 22, the K.L.M. (Dutch Air Lines) began a weekly air service between Batavia and Lydda (Palestine). The K.L.M. service between Batavia and Naples was suspended on June 12.

The first Pan-American Clipper flying boat on the new U.S.A.—New Zealand passenger and mail air line, reached Auckland on July 18 and left on July 20.

Tasman Empire Airways, an associate company of the British Overseas Airways Corporation, in mid-July reduced the price of the journey from Sydney (New South Wales) to Auckland (New Zealand) by 16½ per cent. The fare is now £A25. This is the second cut recently made in Imperial air fares. A week or two earlier, excursion tickets were introduced on the British Overseas Airways route between East and South Africa. Return tickets between Durban and Kisumu can now be had for the cost of a single fare and a half. These excursion rates are proving very popular.

Rubber Ear Pads for Air Raids

Ear pads in soft aerated rubber are the latest wear for A.R.P. wardens, members of the Home Guard, and others who must be out during raids. The pads, which can be fixed over the respirator, are suitable for women and children as well as for men on duty. They disperse the blast from an explosion before it reaches the ear drums and yet allow the wearer to hear ordinary conversation or the sound of a siren.

NOTES AND NEWS

Railcar Collision and Fire in U.S.A.—A petrol-electric railcar collided with a steam goods train on July 31 at Cuyahoga Falls, near Cleveland, Ohio, and caught fire. It is reported that 43 of the 46 persons in the car lost their lives.

Secondhand Machine Tool Prices.—The Minister of Supply has made an Order requiring all secondhand machine tool dealers to register with the Ministry and to keep a record of their transactions. From August 17 no dealings will be authorised except under licence granted by the Minister. The Order also limits dealers' sales to Government departments and other *bona fide* users.

Addressing of Merchandise.—The main-line railway companies have made an application to the Railway Rates Tribunal for an Order modifying the regulations for the addressing of merchandise when carried by merchandise train. The effect of the change sought would be that in large consignments of goods the address of destination would have to be borne by a higher proportion of the goods.

Derailement of Dacca—Calcutta Mail.—In the early morning of August 5, the down Dacca—Sealdah (Calcutta) mail train was derailed between Darsana and Jairampore stations on the main line of the Eastern Bengal Railway, between 70 and 80 miles north of Calcutta. The engine, tender and three coaches capsized and at least 30 persons are reported to have been killed and 70 injured. A rail is said to have been removed from the track. There were no Europeans killed or injured.

Export Groups.—Among the latest export groups whose formation is announced by the Board of Trade is the Malleable Castings Export Group of which the Chairman is Mr. A. E. Hurst, and the Secretary Miss L. Verity (c/o National Association of Malleable Ironfounders, Tudor House, Bridge Street, Walsall, Staffordshire). Mr. W. B. Pickering is Chairman of the Steel Castings Export Group, to which Messrs. Peat, Marwick, Mitchell & Company act as Secretary (Williams Deacon's Bank Chambers, Church Street,

Sheffield 1). Mr. W. N. V. Betts is Chairman of the Steel Wire Rope Export Group and of the Bright Steel Bar Export Group, both of which have Messrs. Peat, Marwick, Mitchell & Company as Secretary and offices at Williams Deacon's Bank Chambers, Church Street, Sheffield 1.

Fire on Lapland Iron Ore Railway.—Press messages from Northern Sweden dated July 29 indicate that, as the result of a fire which broke out at Riksgränsen on the Swedish side of the frontier, traffic on the Lapland Iron Ore Railway between Narvik and Luleå was blocked for some days.

Canadian National Earnings.—Gross earnings of the Canadian National Railways in June, 1940, were \$22,359,937, an increase of \$7,170,416 in comparison with June, 1939. Operating expenses amounted to \$16,798,731, with an increase of \$1,597,114, resulting in net earnings of \$5,561,206, which compared with a deficit of \$12,096 in June, 1939. Aggregate gross earnings for the first six months of 1940 totalled \$113,681,551, an increase of \$26,000,021 in comparison with the first six months of 1939, and the aggregate net earnings of \$16,200,082 go against a deficit of \$505,417.

Canadian Pacific Earnings.—Gross earnings of the Canadian Pacific Railway for June, 1940, amounted to \$14,192,000, an increase of \$3,838,000 in comparison with June, 1939. Working expenses totalled \$11,269,000, or \$1,978,000 more, leaving net earnings \$1,860,000 higher, at \$2,923,000. For the first six months of 1940, aggregate gross earnings were \$75,385,000, an increase of \$13,577,000 in comparison with the first six months of 1939, and the net earnings of \$12,636,000 showed an advance of \$7,285,000.

Richard Thomas & Co. Ltd.—At the annual general meeting on July 30, the chairman, the Earl of Dudley, said the directors regretted that, in spite of a substantial increase in profits, it had not been possible for a dividend to be paid on the preferred capital. That was due largely to the fact that it had been necessary to repay to the general reserve account the £267,429 withdrawn from this account last year. This

repayment was a contractual obligation arising out of the trust deed governing the issue of the prior lien stock.

L.N.E.R. Closes a Lincolnshire Station.—Washingborough station on the Lincoln—Boston line was closed on July 28. Parcels and merchandise traffic to and from Washingborough is being dealt with at Branston & Heighington station, or at Lincoln station from which point railway collection and delivery services continue to operate in the Washingborough district.

British and Irish Railway Stocks and Shares

Stocks	Highest 1939	Lowest 1939	Prices	
			Aug. 6, 1940	Rise Fall
G.W.R.				
Cons. Ord.	38	21½	28½	— ½
5% Con. Pref.	92	71	79	—
5% Red. Pref. (1950) ..	98	83	92½	—
4½% Deb.	103	91	102	—
4½% Deb.	105½	93½	103½	+ 1
4½% Deb.	110	99	108½	+ 1
5% Deb.	121	109½	112½	—
2½% Deb.	63½	54	62	—
5% Rt. Charge	117	104	109½	—
5% Cons. Guar.	111	96½	105½	+ 1
L.M.S.R.				
Ord.	17	9½	11½	— ½
4% Pref. (1923)	46½	20	34	— 1
4% Pref.	63½	37½	48	+ 1
5% Red. Pref. (1955) ..	83	58½	72½	+ 1½
4% Deb.	98½	85	92	—
5% Red. Deb. (1952) ...	109	101½	106	+ 1
4% Guar.	87½	73	79	—
L.N.E.R.				
5% Pref. Ord.	5½	3½	2½	—
Def. Ord.	3½	1½	1½	—
4% First Pref.	38½	19	32	— 1
4% Second Pref.	15	7½	10	—
5% Red. Pref. (1955) ...	55	38	50	—
4% First Guar.	78½	60	67½	+ 1
4% Second Guar.	68½	47	53	—
3% Deb.	71½	57	62	—
4% Deb.	93	76	82	—
5% Red. Deb. (1947) ...	106½	98	103	+ 1
4½% Sinking Fund Red. Deb.	104½	96	99½	—
SOUTHERN				
Pref. Ord.	78	46½	47	+ 1
Def. Ord.	19½	7	10	—
5% Pref.	100	76	78	—
5% Red. Pref. (1964) ...	102½	94	87½	— 2
5% Guar. Pref.	116½	103	105½	+ 1
5% Red. Guar. Pref.	112½	102½	103½	+ 1
4% Deb.	103	91½	99	—
5% Deb.	118½	109½	112½	—
4% Red. Deb. (1962- 67)	106	98	101½	—
4% Red. Deb. (1970- 80)	102	96	100½	—
FORTH BRIDGE				
4% Deb.	98½	81	87½	—
4% Guar.	95	80	85½	—
L.P.T.B.				
4½% "A"	115	103	107	—
5% "A"	123	106½	113	—
4½% "T.F.A."	105	100½	102	—
5% "B"	117½	102	104½	—
5% "C"	84	63½	30	—
MERSEY				
Ord.	24½	17½	20½	—
4% Perp. Deb.	93½	88½	89	—
3% Perp. Deb.	77	65½	59½	—
3% Perp. Pref.	55	49½	54½	—
IRELAND				
BELFAST & C.D.				
Ord.	6	3	4	—
G. NORTHERN				
Ord.	6	2½	4	—
G. SOUTHERN				
Ord.	13½	8	11	—
Pref.	26	10	22½	—
Guar.	40½	22	29½	—
Deb.	57	45½	52½	—

Irish Traffic Returns

IRELAND		Totals for 30th Week			Totals to Date		
		1940	1939	Inc. or Dec.	1940	1939	Inc. or Dec.
		£	£	£	£	£	£
Belfast & C.D. (80 miles)	pass.	5,447	4,652	+ 795	90,976	75,075	+ 15,901
	goods	770	505	+ 265	15,823	13,089	+ 2,734
	total	6,217	5,157	+ 1,060	106,799	88,164	+ 18,635
Great Northern (543 miles)	pass.	14,100	14,650	— 550	338,700	314,800	+ 23,900
	goods	13,850	10,400	+ 3,450	364,150	302,300	+ 61,850
	total	27,950	25,050	+ 2,900	702,850	617,100	+ 85,750
Great Southern (2,076 miles)	pass.	40,526	46,691	— 6,165	997,130	1,022,561	— 25,431
	goods	51,251	38,566	+ 12,685	1,348,801	1,215,636	+ 133,165
	total	91,777	85,257	+ 6,520	2,345,931	2,238,197	+ 107,734
L.M.S.R. (N.C.C.) (247 miles)	pass.	7,883	7,370	+ 510	160,390	134,720	+ 25,670
	goods	4,320	2,620	+ 1,700	107,970	87,300	+ 20,670
	total	12,200	9,990	+ 2,210	268,360	222,020	+ 46,340

Questions in Parliament

Travel Facilities for Armed Forces

Mr. J. Henderson (Manchester, Ardwick—Lab.), on July 30, asked the Financial Secretary to the Treasury whether further consideration would be given to the provision of cheaper railway travelling facilities to members of the Forces when travelling home on leave.

Captain H. F. C. Crookshank (Financial Secretary to the Treasury): No, Sir. Members of H.M. Forces are granted two free railway warrants a year, and on other occasions may obtain a single ticket at half ordinary single fare or a return ticket at ordinary single fare.

Mr. Henderson: Is the Financial Secretary aware that these railway charges are a very serious burden, particularly on soldiers who have only 7s. a week, and that this is typified by the case of a man in Carlisle who had to pay £2 4s. 7d. for seven days' leave, the price of the fare from Aldershot to Carlisle, and will not the Financial Secretary do something so far as the lower paid soldiers are concerned?

Captain Crookshank: I have already explained that two free railway warrants a year are granted, and cheaper rates at other times.

Mr. A. M. Lyons (Leicester East—C.): Does the Financial Secretary realise that the ticket that is sold to soldiers at one-half of the ordinary fare is one-half of the old fare and not one-half of the present return fare, and, therefore, soldiers getting that concession do not get the concession which many people think they ought to get and which the Financial Secretary suggests, and will he make some representation to the railway companies accordingly?

Captain Crookshank did not reply.

Tipping Charge to Forces

Mr. David Robertson (Streatham—C.), on July 31, asked the Minister of Transport if he would request the L.M.S.R. to stop making a compulsory tipping charge to sailors, soldiers and airmen using the dining-car services.

Sir John Reith (Minister of Transport): A minimum charge in lieu of tips is paid by all passengers using L.M.S.R. dining cars, first and third, and I do not feel justified in asking the company to discriminate between them.

Mr. Robertson: Does the Minister realise that the Government is in an invidious position, inasmuch as it is participating in these things either by saving of wages or by the guarantee, or by sharing profits, and will he also take into account that fighting men cannot afford these charges?

Mr. E. Shinwell (Seaham—Lab.): Is the Minister aware that I have heard soldiers in a train complaining about having to pay 1s. 3d. for a bottle of beer, 3d. being the tip? Why should they have to pay the extra 3d.?

Sir John Reith: In platform buffets there are discriminating, special rates for members of His Majesty's Forces.

Mr. Hubert Beaumont (Batley and Morley—Lab.): Will the Minister also consider proposing to the railway companies that they should offer a lunch at less than half-a-crown, which, unfortunately, the soldiers cannot pay?

Sir John Reith: Yes, I am quite prepared to pass on that suggestion.

R.E. Railway Workshops Company

Captain S. F. Markham (Nottingham South—Nat. Lab.), on July 30, asked the Secretary of State for War whether he was aware that men of the 155th Railway Workshops Company, Royal Engineers, had recently been transferred to Class W Reserve, and ordered to take up work at Derby, Wolverton, and other railway centres where there was already insufficient work for existing staffs; and whether he proposed to recall any of these men for active military duties.

Mr. Anthony Eden (Secretary of State for War) in a written reply stated: On its return from France, the unit in question was not immediately required for military purposes, and it was agreed that men of the unit who had previously been in the employ of the railway companies should be temporarily released, provided that the railway companies required their services and they themselves were willing. My hon. and gallant Friend may rest assured that the skilled labour thus made available is needed and is being fully employed.

Railway Workshops

Captain S. F. Markham (Nottingham South—Nat. Lab.), on July 31, asked the Minister of Supply if he was aware that activity at certain railway workshops was less than pre-war standards; if he could state the reason for this; and would he make a statement on the position at these works.

Mr. Herbert Morrison (Minister of Supply) wrote in reply: The reason for the reduced activity referred to is that shortly after the outbreak of war the railway companies reduced their programmes for the building and modernising of rolling stock. As the men affected included coachbuilders, wagon-builders, upholsterers, painters, etc., it was not possible to absorb them immediately into other work. On assuming office I gave this matter early attention and in co-operation with other Ministers arrangements are now being made for surplus capacity at the workshops concerned to be utilised in other directions.

Captain S. F. Markham also asked the Minister of Supply whether he had had such help as might have been expected from high railway company officials with regard to utilising railway workshop facilities for war production.

Mr. Herbert Morrison wrote in reply: Yes, Sir. The railway companies have given me such help as might have been expected, bearing in mind the exacting demands made upon them in wartime to deal with their own work. I am grateful for the help they have given and am quite sure of their continued co-operation.

Railway and Other Reports

Great Southern Railways Company.—For the half-year ended June 30, 1940, no interim dividends are being paid on the 4 per cent. guaranteed preference or on the preference or ordinary stocks of the company.

Letterkenny Railway Company.—Receipts for six months to December 31 were £3,694 (£3,685). Expenditure £2,481, leaving net revenue £1,212 (£1,204). Interest on first and second mortgages £1,046. Debit forward £166 less at £33,425.

Nyasaland Railways Limited.—Gross receipts for 1939 were £178,618, against £170,265 for 1938, and working expenses were reduced from £114,439 to £105,823, leaving net earnings of £72,795, compared with £55,826. The operating ratio, including provision for renewals, was 59.24 per cent., against 67.21 per cent. in 1938. Dividends, interest received, etc., bring total net receipts to £125,003, and interest payments, etc., including £32,035 reserve for taxation, amount to £124,140, leaving £863 to be carried forward.

Dublin United Tramways Co. (1896) Ltd.—Interim dividend again 1 per cent.

Mexico Tramways Limited.—For 1939 the net loss was \$549,984, against \$421,387 in 1938. Results were affected by a strike in October and November and by a new tax on the consumption of power. The debit forward is \$9,270,437.

Hadfields Limited.—Interim dividend 7½ per cent. less tax (same).

Charles Roberts & Co. Ltd.—Trading profit to end March, 1940, was a record at £229,975 (against £212,522). Plus other income £12,154 (£8,711), total profit was £242,129 (£221,233). Net profit was £51,028 (£75,009) after net A.R.P. expenditure of £5,911 (nil) and providing £83,000 (£41,735) for taxation. Ordinary dividend is again 15 per cent. less tax, and balance forward £28,133 (£26,672).

Contracts and Tenders

The Bombay, Baroda & Central India Railway Company has placed an order for a wheel lathe with Craven Brothers (Manchester) Limited.

The Control of Machine Tools (No. 2) Order, 1940, issued by the Minister of Supply under Regulations 55 and 98 of the Defence (General) Regulations, 1939, states that no person in the United Kingdom shall pay or receive for any new machine tool produced in the United Kingdom any price other than a price fixed by the Minister of Supply by Order. It also establishes a price for machine tools produced in the United Kingdom and sold for use in the United Kingdom of a type set out in the schedule to the Order and identical with those on offer for sale during a standard period which is taken as the 6 months ended December 31, 1935.

Railway Stock Market

Earlier in the week security values showed a tendency to improve, but there has been no increase in the volume of business, and investment buying was again confined to gilt-edged stocks. Nevertheless, it is generally agreed that, bearing in mind the question of air raid damage and the threat of invasion, the stock and share markets are showing a much better undertone than might have been expected. In fact, there has again been very little selling of good class securities, the majority of which remain firmly held and in many cases are in short supply in the market. In view of the excellent impression created by the half-yearly dividend statements, which incidentally have served to emphasise the investment merits of home railway debentures, guaranteed and senior preference stocks, it is certainly very disappointing that these stocks have not responded in price. Yields of over 6 per cent. are still obtainable on Great Western and Southern 5 per cent. preference, and the yield offered by L.N.E.R. first guaranteed is over 5½ per cent., and that on L.N.E.R. second guaranteed still exceeds 7 per cent. Based on the full 5 per cent. dividend, which seems likely to be forthcoming for the current year, the return on Southern preferred is around 10 per cent., while as regards L.N.E.R. first preference,

the yield is as much as 12½ per cent. on the basis of the full 4 per cent. distribution. Moreover, in the case of L.M.S.R. 4 per cent. 1923 preference the yield on the full dividend is nearly 11½ per cent. The attractions of these yields are generally recognised, but it is now reasonably certain that, until sentiment has the assistance of encouraging war news, little, if any, recovery of business is likely in the railway and other sections of the Stock Exchange.

In accordance with the general market tendency this week, movements in home railway securities have been small and relatively unimportant. Great Western ordinary at 28½ was fractionally lower on balance, as was the 5 per cent. preference at 78½. At 105½ the guaranteed stock showed small improvement, while the 4 per cent. debentures were unchanged at 102. Whereas L.M.S.R. ordinary was 11½, compared with 12½ a week ago, the senior preference improved from 48 to 48½, but the 1923 preference went back a point to 34. L.M.S.R. guaranteed was higher at 80, and the 4 per cent. debentures kept at 92, at which the yield is approximately 4½ per cent., while at 106 the 5 per cent. debentures showed a gain of a point.

L.N.E.R. first preference was unchanged on balance at 32, as was the second pre-

ference at 10. Moreover, the first guaranteed at 67½, and the second guaranteed at 53, were also maintained on balance; reference has been made above to the generous yields, and guaranteed stocks are, of course, cumulative as to dividend. L.N.E.R. 3 per cent. and 4 per cent. debentures were fractionally lower at 81½ and 81½ respectively, and offer yields of fully 4½ per cent. London Transport "C" remained at 30. As regards Southern Railway stocks, the preferred came in for some attention and improved a point to 47. The deferred stock, although fractionally lower on balance at 10, was inclined to be firmer subsequently in view of renewed market hopes that a small payment may be forthcoming for the current year; but estimates do not exceed 1 per cent., and it is realised that much may turn on the question of air raid damage. Southern 5 per cent. preference stock remained at 78, while the 4 per cent. debentures were higher at 99½.

Several Argentine railway prior charges again made lower prices, but movements were smaller than in recent weeks, although Central Argentine 5 per cent. debentures went back to 31. Antofagasta preference stock was easier at 21. Elsewhere, Canadian Pacific preference was again bought and improved to 41½.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1939-40	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to Date			Shares or Stock	Prices				
			Total this year	Inc. or Dec. compared with 1939		Totals		Increase or Decrease		Highest 1939	Lowest 1939	Aug. 6, 1940	Yield % (See Note)	
						This Year	Last Year							
South & Central America	Ancofagasta (Chili) & Bolivia	834	28.7.40	£ 9,880	+ £ 2,050	30	£ 543,360	£ 388,490	+ £ 154,870	Ord. Stk.	10½	4½	5	Nil
	Argentine North Eastern	753	27.7.40	ps. 177,500	ps. 4,600	4	ps. 689,500	ps. 750,200	- ps. 60,700	"	4½	2	2	Nil
	Bolivar	174	June 1940	3,930	+ 720	26	24,580	24,950	- 370	6 p.c. Deb.	7½	5½	6½	Nil
	Brazil									Bonds	5½	4½	6	Nil
	Buenos Ayres & Pacific	2,801	27.7.40	ps. 1,168,000	ps. 59,000	4	ps. 4,416,000	ps. 5,132,000	- ps. 716,000	Ord. Stk.	5½	2	2	Nil
	Buenos Aires Central	190	18.5.40	886,100	- 824,600	47	8,441,700	8,486,500	- 44,800	Mt. Deb.	14	8	13½	Nil
	Buenos Ayres Gr. Southern	5,082	27.7.40	ps. 1,927,000	ps. 41,000	4	ps. 7,654,000	ps. 7,928,000	- ps. 274,000	Ord. Stk.	13½	4½	4	Nil
	Buenos Ayres Western	1,930	27.7.40	ps. 646,000	ps. 89,000	4	ps. 2,492,000	ps. 2,918,000	- ps. 426,000	"	10½	4	3	Nil
	Central Argentine	3,700	27.7.40	ps. 1,545,750	ps. 515,250	4	ps. 5,713,550	ps. 8,942,450	- ps. 3,228,900	"	11½	4	2	Nil
	Do.									Div.	4	1½	2	Nil
	Cent. Uruguay of M. Video	972	27.7.40	15,839	- 518	4	65,161	71,529	- 6,368	Ord. Stk.	2½	1½	1½	Nil
	Costa Rica	188	May 1940	17,282	- 7,020	48	193,339	245,516	- 52,177	Stk.	24½	18	17½	11½
	Dorada	70	June 1940	12,900	- 900	26	72,000	80,600	- 8,600	1 Mt. Db.	104½	102	98	6½
	Entre Rios	810	27.7.40	ps. 257,700	ps. 4,600	4	ps. 982,800	ps. 1,178,700	- ps. 195,900	Ord. Stk.	6	3	1½	Nil
	Great Western of Brazil	1,016	27.7.40	6,500	+ 1,700	30	309,300	250,200	+ 59,100	Ord. Sh.	3/-	1/2	1½	Nil
	International of C. Amer.	794	June 1940	\$464,143	+ \$31,059	26	\$3,305,093	\$3,234,012	+ \$71,081	"				
	Interoceanic of Mexico									1st Pref.	7½d.	7½d.	6½	Nil
	La Guaira & Caracas	22½	June 1940	4,760	- 2,025	26	39,435	35,430	+ 4,005	Stk.	7	6½	1½	Nil
	Leopoldina	1,918	27.7.40	21,289	- 1,232	30	656,557	574,344	+ 82,213	Ord. Stk.	2½	1½	1	Nil
	Mexican	483	21.6.40	ps. 282,600	ps. 31,000	25	ps. 7,471,900	ps. 7,925,900	- ps. 454,000	"	1½	1½	1½	Nil
	Midland of Uruguay	319	June 1940	10,590	+ 3,473	52	131,300	104,319	+ 26,981	"	2½	1½	1½	Nil
	Nitrate	396	31.7.40	5,483	+ 729	30	103,419	70,318	+ 33,101	Ord. Sh.	2½	1½	1½	7½
Paraguay Central	274	27.7.40	\$3,269,000	+ \$51,000	4	\$15,774,000	\$14,966,000	+ \$808,000	Pr. Li. Stk.	45½	36	38	15½	
Peruvian Corporation	1,059	July 1940	65,421	+ 1,015	4	65,421	64,406	+ 1,015	Pref.	1½	84	215	3	
Salvador	100	22.6.40	£14,617	+ £617	51	£970,864	£1,050,389	- £79,525	Pr. Li. Db.	19½	16	15	Nil	
San Paulo	153½	21.7.40	39,500	+ 1,225	29	1,087,690	952,496	+ 135,194	Ord. Stk.	38	20	28	8½	
Taltal	160	June 1940	830	- 1,625	52	29,590	33,700	- 4,110	Ord. Sh.	8	6/6	9½	Nil	
United of Havana	1,353	27.7.40	16,340	+ 1,548	4	64,709	66,093	- 1,384	Ord. Stk.	2	2	2	Nil	
Uruguay Northern	73	June 1940	885	+ 179	52	13,244	11,366	+ 1,878	Deb. Stk.	2	2	2	Nil	
Canada	Canadian National	23,695	31.7.40	1,453,465	+ 409,187	30	27,215,316	20,649,036	+ 6,566,280	"				
	Canadian Northern								4 p.c.	Perp. Obs.	74½	60	72½	5½
	Grand Trunk								6 p.c. Gar.	100½	76	102	3½	
Canadian Pacific	17,153	31.7.40	1,070,690	+ 255,200	30	18,137,600	14,693,000	+ 3,444,600	Ord. Stk.	7½	3½	5½	Nil	
India & Far East	Assam Bengal	1,329	30.4.40	45,187	+ 6,529	4	135,060	120,437	+ 14,623	Ord. Stk.	76½	60	72½	4½
	Barsi Light	202	31.5.40	3,577	+ 300	9	24,607	19,545	+ 5,062	Ord. Sh.	56½	50½	40½	8½
	Bengal & North Western	2,091	June 1940	231,600	+ 20,256	13	811,688	713,368	+ 98,320	Ord. Stk.	277	229½	240	6½
	Bengal Doonars & Extension	161	31.5.40	4,567	+ 1,449	9	23,228	15,781	+ 7,447	"	91	84½	215	3
	Bengal-Nagpur	3,269	20.5.40	247,650	+ 17,103	7	1,252,050	1,161,007	+ 91,043	"	94½	83½	92½	4½
	Bombay, Baroda & C. India	2,985	20.7.40	222,375	+ 24,225	16	3,061,050	2,736,600	+ 324,450	"	108	90	100½	6
	Madras & Southern Mahratta	2,967	31.5.40	192,300	+ 10,980	9	1,152,000	1,087,659	+ 64,341	"	104½	92	98½	7½
	Rohilkund & Kumaon	571	June 1940	58,050	+ 9,246	13	192,915	151,792	+ 41,123	"	280	263	250	6½
	South Indian	2,531½	20.5.40	121,425	+ 7,685	7	598,652	589,624	+ 9,028	"	102½	88	84½	5½
	Various	Beira	204	May 1940	81,516	- 4,591	34	582,096	20,384	- 561,712	Pr. Sh.	1½	1½	1½
Egyptian Delta		623	10.5.40	4,591	- 602	6	19,436			"				
Kenya & Uganda		1,625								8. Deb.	55	39	47½	7½
Manila										Inc. Deb.	91½	87½	82½	4½
Midland of W. Australia		277	Mar. 1940	12,505	- 4,071	40	115,376	138,753	- 23,377	"				
Nigerian		1,930	8.6.40	33,599	+ 9,988	10	376,293	299,153	+ 77,140	"				
Rhodesia		2,442	May 1940	413,336	- 34	34	3,045,211			"				
South Africa		13,287	6.7.40	718,656	+ 46,248	14	9,210,552	8,886,302	+ 324,250	"				
Victoria		4,774	Mar. 1940	884,029	+ 32,550	37	7,583,830	7,069,208	+ 514,622	"				

Note. Yields are based on the approximate current prices and are within a fraction of ½. Argentine traffic is now given in pesos

* Quotation is of June 17, 1940; dealings subsequently prohibited

† Receipts are calculated @ 1s. 6d. to the rupee